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THE IMPACT OF DEFICITS ON INTEREST RATES, SAVINGS, INVESTMENT, AND THE DOLLAR

HEARINGS

BEFORE THE

JOINT ECONOMIC COMMITTEE

AND THE

SUBCOMMITTEE ON ECONOMIC GOALS AND INTERGOVERNMENTAL POLICY

OF THE

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CONTENTS

WITNESSES AND STATEMENTS

FRIDAY, OCTOBER 21, 1983

Page

Jepsen, Hon. Roger W., chairman of the Joint Economic Committee: Opening statement ---- 1

Johnson, Manuel H., Assistant Secretary of the Treasury for Economic Policy ---- 2

Carlson, Jack, executive vice president and chief economist, National Association of Realtors, Washington, D.C ---- 129

TUESDAY, NOVEMBER 8, 1983

Exon, Hon. J. James, a U.S. Senator from the State of Nebraska ---- 185

Bentsen, Hon. Lloyd, vice chairman of the Subcommittee on Economic Goals and Intergovernmental Policy: Opening statement ---- 188

Feldstein, Hon. Martin, Chairman, Council of Economic Advisers ---- 193

SUBMISSIONS FOR THE RECORD

FRIDAY, OCTOBER 21, 1983

Carlson, Jack: Prepared statement, together with an attachment and appendixes ---- 133

Johnson, Manuel H.: Prepared statement, together with additional material ---- 9

TUESDAY, NOVEMBER 8, 1983

Bentsen, Hon. Lloyd:
  Letter from Senator Bentsen to Secretary Regan, dated November 8, 1983, nominating Chairman Feldstein for the "Regan Prize" ---- 190
  Tables:
    Federal deficits and real interest rates, 1974–82 ---- 191
    Federal deficits and the international value of the dollar, 1976–83 ---- 192

Feldstein, Hon. Martin: Prepared statement, together with an attachment ---- 198

THE IMPACT OF DEFICITS ON INTEREST RATES, SAVINGS, INVESTMENT, AND THE DOLLAR

FRIDAY, OCTOBER 21, 1983

Congress of the United States,
Joint Economic Committee,
Washington, D.C.

The committee met, pursuant to notice, at 10 a.m., in room 138, Dirksen Senate Office Building, Hon. Roger W. Jepsen (chairman of the committee) presiding.

Present: Senators Jepsen, Abdnor, and Proxmire.

Also present: Bruce R. Bartlett, executive director.

OPENING STATEMENT OF SENATOR JEPSEN, CHAIRMAN

Senator Jepsen. The hearing will come to order.

With inflation virtually licked and with unemployment finally coming down as well, high interest rates are clearly the most important economic problem that we are faced with today.

No one really knows for sure why interest rates are high. However, most people tend to blame either the large Federal deficits, or the Federal Reserve for either making too much money or too little money for the economy's needs.

Yesterday, we heard from Federal Reserve Board Chairman Paul Volcker who assures us that he is not responsible for high interest rates. If this is so, then this leaves only the deficit as an explanation, and this is the thrust of today's hearing.

Our first witness will be Manuel Johnson, Assistant Secretary of the Treasury for Economic Policy. Our second witness will be Jack Carlson, vice president and chief economist of the National Association of Realtors. I could expect that these witnesses will take somewhat opposing viewpoints regarding the impact of current budget deficits on interest rates.

My own view is that regardless of whether deficits raise interest rates or not, there are still good reasons why Federal spending should be cut and the Federal budget balanced. If the United States had a balanced budget-spending limitation amendment to the Constitution for the last 50 years or so, I have no doubt that Federal spending today would be vastly lower than it is and our economy would be far stronger than it is.

Nevertheless, I am interested in learning from our witness what the impact on interest rates is likely to be from a cut in the deficit. I would like the witnesses to specifically address the question of whether we could expect the same result from an increase in taxes or a reduction in spending. Since much of the deficit reduction effort seems largely oriented toward raising taxes, rather than cutting spending, I think this is an important issue.

I am looking forward to your testimony.

At this time, I would recognize the very distinguished Senator from Wisconsin, Senator Proxmire, for any remarks that he may have prior to recognizing and proceeding with the witnesses.

Senator Proxmire. Thank you very much, Mr. Chairman. I am anxious to hear these two witnesses. I understand, as you say, they are not exactly agreeing, at least on everything. So this should be a very interesting hearing and a lot of fun. I am looking forward to it.

Senator Jepsen. I thank you.

I would advise the witnesses that their prepared statements will be entered into the record. Therefore, you may proceed in any manner you so desire, and, Mr. Johnson, as I indicated, we will start with you.

STATEMENT OF MANUEL H. JOHNSON, ASSISTANT SECRETARY OF THE TREASURY FOR ECONOMIC POLICY

Mr. Johnson. Thank you, Mr. Chairman. It is a pleasure to appear before the Joint Economic Committee in response to your invitation to testify on the subject of the relationship between Federal budget deficits and interest rates.

I would like to begin my testimony with a summary of Federal budget deficit projections. Then I shall summarize some results of mainstream macroeconomic theory and empirical research regarding the relationship between budget deficits and interest rates and economic growth. I would also like to briefly reflect on possible policy measures to deal with these deficits because I think we are concerned with policy implications.

The table that is appended to my prepared statement shows Federal budget deficits projected through fiscal year 1986 in both billions of dollars and as a percentage of GNP. Estimates are given for both the first congressional budget resolution and the administration's midsession review of the fiscal year 1984 budget. In the interest of comparability I have used CBO's estimates as they appear in their August publication. It should be noted, however, that more recent preliminary estimates indicate that the fiscal year 1983 deficit will come in below the midsession estimate which is currently $210 billion and that the fiscal year 1984 deficit estimate may also prove to be too high. We're not sure exactly what the deficit might be at this point, but it looks like it is coming in very close to $195 billion, actually $15 billion below our current projections.

Also, for your information, I have included the revenue and outlay numbers upon which the deficit estimates are based. Although the current debate often is carried on only in terms of the deficit, it is obvious that the deficit is simply a residual, the difference between revenues and outlays. This latter pair of quantities describes the Federal programs which the Congress must enact. Also, experienced analysts realize that the economic effect on a given deficit is likely to depend on the size of outlays relative to GNP, the composition of those outlays and the kind of taxes that are actually levied.

A quick look at the table I provided in my prepared statement shows that unified budget deficits are expected to be large through fiscal year 1986, but they are projected to decline both in absolute terms and as a percentage of GNP. A similar story is told by the Congressional Budget Office's estimates of a so-called standardized deficit, calculated on the basis of an economy operating at 6 percent unemployment, generally regarded these days as a full employment rate of unemployment.

For the 3-year period fiscal year 1984–86, the standardized deficit is estimated to be $99, $110, and $87 billion, respectively—or 2.6, 2.7, and 2 percent of GNP. The difference between actual and standardized deficit projections is roughly the amount of deficit due to underutilization of productive capacities and is commonly regarded as of less concern than the structural deficit, which is the amount of deficit left after the economy becomes fully employed.

Traditionally, in popular discussions, deficits have been viewed as affecting primarily macroeconomic targets of aggregate demand and price stability. Recently the role of budget deficits as automatic or discretionary countercyclical stabilization tools has become controversial. Moreover, questions about the effects of Government deficit spending on long-term real economic growth have become a focus of attention and contention.

The discussion about the consequences of budget deficits for economic growth often is phrased in terms of their effects on prices of goods, services, and, especially, such financial variables as interest or exchange rates. An examination of frequently encountered assertions about the casual links between deficits and interest rates reveals that, contrary to some widely publicized opinions, the effect of Government deficits is by no means unambiguous. The outcome depends, among other things, on the assumption made about the saving behavior of the private sector. One framework of analysis notes that when taxes are cut and Government borrowing is increased by an equal amount, some or even perhaps all of the tax cut will be spent on new Government bonds.

The total amount of the tax cut will be used to purchase the new bonds if the taxpayer/bondbuyer perceives that the bond interest he receives will be used to pay the future tax required to service the Government debt, and that the return of the principal of the bond will be used to pay the future tax required to retire the bond. In other words, new saving is set aside for future taxes. In this case, leaving aside incentive and distributional effects, there is no impact on the interest rate whether Government spending is financed by taxes or borrowing. This view, while still controversial, is not new—it happens to date back to at least the time of David Ricardo in the early 19th century. And several recently completed empirical studies suggest support for this hypothesis.

The extreme opposite assumption is that there is no substitution whatsoever between taxes and borrowing by the Government; extra after-tax personal income is devoted entirely to increased consumption, therefore, none is saved. Thus, no increase in private saving accompanies the additional Government borrowing and thus the additional demand for loanable funds inevitably results in upward pressure on interest rates.

Other factors that exert crucial influence on the outcome are the extent to which: Deficits are caused by spending increases or tax cuts; financing is accomplished by monetization of the debt or by sale of Government debt to the public without new money creation; the tax cut reduces marginal tax rates thus improving incentives to supply productive labor and capital; the outlays financed by the deficits change the composition of Government spending; and Government debt is an attractive investment for foreigners and encourages capital inflows from abroad.

These considerations indicate that short-term consequences of budget deficits may be very different from the long-term ones. I shall devote a few remarks to both.

Some concerns about the impact of budget deficits on interest rates focus on very short-term financial effects, which, even if they do in fact occur more or less systematically, are of very short-lived and reversible nature. A surge in Treasury borrowing may raise interest rates very briefly. However, at most it can be said that this temporary rise reflects the reaction of financial markets to short-term excess flow demand for credit that must rather rapidly be eliminated by financial adjustments. In other words, as Treasury borrowing demand rises causing interest rates on Treasury bills to rise, people shift other financial assets into Treasury bills, and this adjusts the interest rate. But a short transition period is necessary for this to take place.

These very short-run effects, while clearly of great significance to participants in financial markets, have minimal influence on the longer term evolution of real economic variables and are, therefore, of relatively minor importance for formulation of economic policy.

Some analysts assert that high current deficits will prevent or abort the ongoing economic recovery. The argument behind this assertion is that big deficits cause high interest rates; high interest rates depress expenditures for output of interest sensitive industries; and the economy cannot recover unless those industries recover.

In discussing the cycle, it is clear that "passive" deficits which are the result of recession are matched by a decline in private sector borrowing, and are not likely to raise interest rates or prevent recovery. What seems to be at issue is the impact of "active" deficits which go beyond the normal cyclical levels due to deliberate policy changes.

The conditions under which big deficits do or do not cause high interest rates will be discussed in a few moments.

But even assuming that big deficits do cause high interest rates, this need not derail economic recovery. Reduced demand for some categories of output may be more than offset by larger expenditures for other categories of output, such as consumption of nondurables or even defense spending. The strength of recovery depends on total production and sale of goods and services rather than particular categories of goods and services. In fact, it is widely recognized that an "active" deficit adds to total spending and thus aids the recovery to proceed apace. Depending on economic conditions, including the rate of money growth, the current deficit may put some upward pressure on interest rates or other prices. However, this would indicate that there is more than enough, rather than too little, aggregate demand relative to the available supply of goods and services.

There is no economic theory to support the assertion that a large current deficit will depress the economy. And, Alan Sinai's recent DRI study shows that a sustained reduction in the deficit particularly with no acceleration in money supply growth will reduce real GNP for a 3-year period. This is a Keynesian approach to the problem, but this individual finds that assuming no acceleration in money supply growth that the opposite would occur. At most, a large deficit that adds to total spending and thus contributes to an upward pressure on the interest rate may also contribute to a bias in the composition of total demand against the output of interest sensitive industries, such as, for instance, housing. The extent to which this bias will be pronounced is an empirical matter.

Another assertion is that large expected future deficits will prevent the recovery. The argument behind this assertion is as follows. Future deficits make expected future interest rates high. That keeps present long-term interest rates high, because today people will not lend long term at rates that are below the rate they expect to obtain several years from now.

One version of the argument is that prospective deficits result in higher expected inflation, which results in expected higher nominal interest rates in the future, thus causing higher nominal rates now because of the arbitrage effect that occurs. But even if future deficits cause higher expected inflation, which is by no means self-evident, this argument implies that nominal—not real—interest rates rise, and real interest rates are the important factor. However, in a rational world, high nominal rates should not restrain investment unless expected real rates also rise.

The foregoing discussion of the likely effects of Government deficits on the prospects for recovery assumes, albeit not without caveats, that Government deficits are responsible for high interest rates. However, the extent to which deficits affect interest rates in the medium term is a question for which mainstream conventional economic theories have only ambiguous answers.

Perhaps the most widely used approach for analyzing intermediate-run effects of deficits on interest rates is the Keynesian theoretical framework in which an increase in the deficit brought about either by an increase in Government spending or a reduction in taxes has the effect of raising interest rates. This happens, in a Keynesian framework, because an increase in the deficit leads to an increase in aggregate demand, and hence, in nominal gross national product. The increased dollar volume of transactions requires more money. If the Fed does not accommodate the increased demand for money, the velocity of circulation—in other words, the number of times money has to turn over in the economy—must rise, a result which is made possible by a rise in interest rates. It may be noted that in the Keynesian framework higher interest rates are associated with higher GNP, which is quite different from an assertion that high interest rates prevent GNP from rising.

Another critique of fiscal policy characterized by large deficits emphasizes the so-called crowding out effect of excessive Government borrowing.

The term "crowding out" is used loosely in popular discussions to convey the notion of a displacement of private investment by Government absorption of real credit. But this notion is misleading and the concept of crowding out is rather murky.

Because credit is scarce, it is rationed by capital markets, and so even if Government is totally absent from capital markets, some potential borrower is crowded out at any level of interest rates. Crowding out thus occurs in the process of market allocation of limited credit to the users able to pay the highest prices. But if, for instance, increased Government borrowing is due to a corporate tax cut, cash flows internally generated by corporations will increase, and their credit demands will decrease commensurately. Also, the financial market process of crowding out does not contain any subjective selection; that is, for a given level of Government spending only the least efficient user of capital is forced out of the market. It's not an arbitrary process.

The unique role of the Government in crowding out other potential borrowers is not due to the sheer size of its credit demands. Rather, it mainly reflects the facts that the Government borrowing is interest rate insensitive, and that the Government borrows to finance activities that predominantly do not add to future productive capacity. Since Government spending is, from the standpoint of generating future growth, less productive, it preempts some resources which otherwise could have been used for more productive investment purposes in the private sector. Rather than a financial phenomenon, the reduction in private investment and consumption reflects the resource allocation required when increased Government expenditure demands compete with private investment and consumption for limited amounts of labor, capital and other productive inputs. Preemption of these productive factors by the Government is sometimes labeled real, as distinct from financial, crowding out. Thus, apart from incentive effects, the impact of Government spending on the economy in the medium term is the same independently of whether this preemption is financed by borrowing or by taxes.

It is also worth noticing that crowding out by the Government, be it financial or real, need not necessarily have its major impact on business investment rather than households' consumption. All that can be said is that interest-sensitive spending by the private sector is reduced relative to noninterest-sensitive expenditures.

Now an important matter is incentive effects. The increase in the supply of productive factors caused by improved incentives resulting from cuts in marginal tax rates—are most important when the tax cuts are permanent. A tax cut financed by Government borrowing may be viewed as temporary to the extent that the borrower expects that tax rates will be raised to retire the debt originally issued to finance the tax cut. Thus, a tax cut is more likely to be viewed as permanent when accompanied by a reduction in Government spending. To the extent that a tax cut enhances economic growth, Government borrowing to finance the tax cut will be less likely to crowd out private investment. This is because higher growth means, first, more tax revenues to partly offset initial revenue losses, and, second, more saving to meet the additional supply of Government bonds. Therefore, there would be less upward pressure on real interest rates and on prices, resulting in more private investment and a different consumption pattern.

Finally, I would like to offer a few brief remarks on the connection between Government deficits and interest rates and exchange rates in the long run.

Simulations indicate that the effects of tax rate cuts on the supply of aggregate output, while rather weak in the short run, may, in the long run, become quite strong. Therefore, it appears that the secular trend of deficits, if kept at a sustainable level, may be more conducive to economic growth than if the corresponding amount of funds was raised by taxing the productive factors in the economy.

Even if one were to accept the proposition that continuing high deficit-to-GNP ratios cause high interest rates, one could not conclude that these high interest rates will unavoidably result in slow economic growth. If tax cuts and tax reforms geared toward creating economic incentives, rather than increases in less productive Government spending, are the prime reason for deficits, high real interest rates may have no discernible effects on the rate of economic growth. In fact, evidence abounds that during periods of economic buoyancy and optimistic expectations, as, for instance, in the 1920's and the 1960's, high investment levels and concomitant high growth rates may prevail for long stretches of time despite high (real) interest rates and, vice-versa, low (real) interest rates prevalent, for instance, in the 1970's—in fact, they were negative—by no means guarantee high investment levels or robust growth.

The theoretical analysis presented so far indicates that the effects of an increase in the deficit upon interest rates are ambiguous; larger deficits can coincide with either higher or lower interest rates.

Econometric—statistical—attempts to discern systematic relationships between deficits and real interest rates, while controlling for other influences such as the growth of money, business cycle effects, and effects of risk due to volatility in the money growth, have failed to establish reliable evidence of such a relationship. Consider, for example, two recent studies by researchers who represent somewhat different approaches to macroeconomic analysis: Princeton University Prof. Alan Blinder, and Ohio State University Prof. William Dewald, who is editor of the "Journal of Money, Credit, and Banking." If you like labels, Blinder is a Keynesian, while Dewald is a monetarist.

Dewald, in a January 1983 paper published by the Federal Reserve Bank of Atlanta, concludes that, "the high real interest rates in 1981 and 1982 are attributable to much higher and particularly much more variable inflationary expectations than normal," and, he continues, there are "a variety of credit market factors" which "offer a more promising explanation of high real interest rates than budget deficits which have been found to account for very little of recent high real interest rates."

In his December 1982 National Bureau of Economic Research Working Paper, Blinder says that on the basis of his statistical analyses, "The hypothesis that growth in debt does not help predict real GNP growth cannot be rejected" and "in sum, neither growth in bank reserves nor growth in national debt carries much information that is useful in predicting future real GNP growth."

A recent study by University of Rochester Prof. Charles Plosser finds that increases in Government spending raise interest rates, whether financed by borrowing or taxing. He finds that substituting taxing for borrowing to finance the same level of Government spending has little impact on bond prices or interest rates. Thus, to reduce interest rates, spending must be cut.

As you may know, Mr. Chairman, we at the Treasury are in the process of completing a comprehensive review of the set of issues I discussed in my testimony. This review will contain an annotated bibliography of academic literature on the subject, a critical analysis of relevant empirical work, and our own attempts to statistically identify determinants of interest rates. Your staff expressed interest in the monograph we are preparing and I would like to offer it for the record when it is completed.

In conclusion, even though the relationship between the deficit and real interest rates and economic growth remains an open case, I am seriously concerned about future deficits because they are projected to be too large a share of GNP even though tax receipts are simultaneously projected to be at or near historically high levels—between 19 and 20 percent of GNP, and I want to keep emphasizing that. Even though we've had some cuts in marginal tax rates and some associated revenue loss plus the revenue losses resulting from the disinflation we've had in the economy, revenues as a percent of GNP at this time are at historically high levels, as I said, between 19 and 20 percent of GNP. That's why I'm basically concerned about deficits; that in spite of the fact that revenues are at historically high levels of GNP, we still have large deficits.

In this situation, my conclusion is that Federal outlays must be trimmed. I prefer this course for several reasons.

First, a tax increase may simply buy more spending rather than less deficit. For example, the administration consented to a $100 billion tax increase in TEFRA in exchange for nearly $300 billion in outlay reductions. Initially, only $53 billion in spending cuts were voted by the Congress, the subsequent budget resolution reclaims even those cuts and projects spending increases this year of about $21 billion over last year.

Second, a tax increase probably would not be effective in reducing interest rates. Moreover, a business tax increase would have a direct and adverse effect on investment spending by reducing the rate of return on plant, equipment, and structures, while an individual income tax increase would discourage investment by small unincorporated businesses, and would reduce savings and raise labor costs, which would also retard investment and growth.

The case for raising taxes is based on the assumption that it will cause saving and investment to expand relative to consumption spending. The theoretical analysis and empirical evidence on this supposition is not convincing, and I believe that my skepticism is warranted.

In my opinion, the growth of Federal outlays should be slowed so that it runs about 20 or 21 percent rather than close to 25 percent of GNP currently being realized. This goal should be the first priority of the Congress and the administration as it considers spending legislation in the current fiscal year.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Johnson, together with additional material subsequently supplied for the record, follow:]

PREPARED STATEMENT OF MANUEL H. JOHNSON

Good morning, Mr. Chairman. It is a pleasure to appear before the Joint Economic Committee in response to your invitation to testify on the subject of the relationship between Federal budget deficits and interest rates.

I would like to begin my testimony with a summary of Federal budget deficit projections. Then I shall summarize some results of mainstream macroeconomic theory and empirical research regarding the relationship between budget deficits and interest rates and economic growth. I would also like to briefly reflect on possible policy measures to deal with these deficits.

Projected Deficits

The table appended to my testimony shows Federal budget deficits projected through FY 1986 in both billions of dollars and as a percentage of GNP. Estimates are given for both the

First Congressional Budget Resolution and the Administration's Mid-Session Review of the FY 1984 Budget. In the interest of comparability I have used CBO's estimates as they appear in CBO's The Economic and Budget Outlook: An Update, August 1983. It should be noted, however, that more recent preliminary estimates indicate that the FY 1983 deficit may come in substantially below the mid-session estimate of $210 billion and that the FY 1984 deficit estimate may also prove to be too high. Also, for your information, I have included the revenue and outlay numbers upon which the deficit estimates are based. Although the current debate often is carried on only in terms of the deficit, it is obvious that the deficit is simply a residual, the difference between revenues and outlays. This latter pair of quantities describes the Federal programs which the Congress must enact. Also, experienced analysts realize that the economic effect of a given deficit is likely to depend on the size of outlays relative to GNP, the composition of outlays and the kind of taxes levied.

A quick look at the table shows that unified budget deficits are expected to be large through FY 1986, but they are projected to decline both in absolute terms and as a percentage of GNP. A similar story is told by CBO's estimates of a so-called "standardized" deficit, calculated on the basis of an economy operating at 6 percent unemployment. For the three-year period FY 1984-86, the standardized deficit is estimated to be $99, $110, and $87 billion, respectively -- or 2.6, 2.7 and 2.0 percent of GNP. The difference between actual and standardized deficit projections is roughly the amount of deficit due to underutilization of productive capacities and is commonly regarded as of less concern than the structural deficit.

Deficits, Macroeconomic Analysis and Ambiguous Results

Traditionally, in popular discussions, deficits have been viewed as affecting primarily macroeconomic targets of aggregate demand and price stability. Recently the role of budget deficits as automatic or discretionary countercyclical stabilization tools has become controversial. Moreover, questions about the effects of government deficit spending on long-term real economic growth have become a focus of attention and contention.

The discussion about the consequences of budget deficits for economic growth often is phrased in terms of their effects on prices of goods, services and, especially, such financial variables as interest or exchange rates. An examination of frequently encountered assertions about the causal links between deficits and interest rates reveals that, contrary to some widely publicized opinions, the effect of government deficits is by no means unambiguous. The outcome depends, among other things, on the assumption made about the saving behavior of the private sector. One framework of analysis notes that when taxes are cut and government borrowing is increased by an equal amount, some (perhaps all) of the tax cut will be spent on new government bonds.

The total amount of the tax cut will be used to purchase the new bonds if the taxpayer/bondbuyer perceives that the bond interest he receives will be used to pay the future tax required to service the government debt, and that the return of the principal of the bond will be used to pay the future tax required to retire the bond. In this case, leaving aside incentive and distributional effects, there is no impact on the interest rate whether government spending is financed by taxes or borrowing. This view, while still controversial, is not new -- it dates at least from David Ricardo in the early 19th century. And several recently completed empirical studies suggest support for this hypothesis.

The extreme opposite assumption is that there is no substitution whatsoever between taxes and borrowing by the government; extra after-tax personal income is devoted entirely to increased consumption, none is saved. Thus, no increase in private saving accompanies the additional government borrowing and thus the additional demand for loanable funds inevitably results in upward pressure on interest rates.

Other factors that exert crucial influence on the outcome are the extent to which: deficits are caused by spending increases or tax cuts; financing is accomplished by monetization of the debt or by sale of government debt to the public without new money creation; the tax cut reduces marginal tax rates thus improving incentives to supply productive labor and capital; the outlays financed by the deficits change the composition of government spending; and government debt is an attractive investment for foreigners.

The results are also influenced by the magnitudes of the private sector's various responses to the specifics of the policy changes and a host of institutional arrangements determining the adaptability of labor, product and asset markets to changing economic conditions.

These considerations indicate that short-term consequences of budget deficits may be very different from the long-term ones. I shall devote a few remarks to both.

Short-term Financial Effects

Some concerns about the impact of budget deficits on interest rates focus on very short-term financial effects, which, even if they do in fact occur more or less systematically, are of very short-lived and reversible nature. A surge in Treasury borrowing may raise interest rates briefly. However, at most it can be said that this temporary rise reflects the reaction of financial markets to short-term excess flow demand for credit that must eventually (and rather rapidly) be eliminated by adjustments in the size and composition of accumulation of financial assets by the private sector.

These very short-run effects are, while clearly of great significance to participants in financial markets, have minimal influence on the longer-term evolution of real economic variables and are, therefore, of relatively minor importance for formulation of economic policy.

Effects of Deficits on Cyclical Recovery

Some analysts assert that high current deficits will prevent or abort the ongoing economic recovery. The argument behind this assertion is that big deficits cause high interest rates; high interest rates depress expenditures for output of interest sensitive industries; and the economy cannot recover unless those industries recover.

In discussing the cycle, it is clear that "passive" deficits which are the result of recession are matched by a decline in private sector borrowing, and are not likely to raise interest rates or prevent recovery. What seems to be at issue is the impact of "active" deficits which go beyond the normal cyclical levels due to deliberate policy changes.

The conditions under which big deficits do or do not cause high interest rates will be discussed in a few moments.

But even assuming that big deficits do cause high interest rates, this need not derail the recovery. Reduced demand for some categories of output may be more than offset by larger expenditures for other categories of output (such as consumption of nondurables or defense spending). The strength of recovery depends on total production and sale of goods and services rather than particular categories of goods and services. In fact, it is widely recognized that an "active" deficit adds to total spending and thus aids the recovery to proceed apace. Depending on economic conditions (including the rate of money growth), the current deficit may put some upward pressure on interest rates or other prices. However, this would indicate that there is more than enough, rather than too little, aggregate demand relative to the available supply of goods and services.

There is no economic theory to support the assertion that a large current deficit will depress the economy. And, Alan Sinai's recent DRI study shows that a sustained reduction in the deficit particularly with no acceleration in money supply growth will reduce real GNP for a three-year period. At most, a large deficit that adds to total spending and thus contributes to an upward pressure on the interest rate may also contribute to a bias in the composition of total demand against the output of interest sensitive industries, such as, for instance, housing. The extent to which this bias will be pronounced is an empirical matter.

Another assertion is that large expected *future* deficits will prevent the recovery. The argument behind this assertion is as follows. Future deficits make expected future interest rates high. That keeps present long-term interest rates high, because today people will not lend long term at rates that are below the rate they expect to obtain several years from now.

One version of the argument is that prospective deficits result in higher *expected* inflation, which results in expected higher nominal interest rates in the future, thus causing higher nominal rates now. But even if future deficits cause higher expected inflation (which is by no means self-evident), this argument implies that nominal -- not real -- interest rates rise. However, in a rational world high nominal rates should not restrain investment unless expected real rates also rise.

Effects of Deficits Over the Time Span of a Business Cycle

The foregoing discussion of the likely effects of government deficits on the prospects for recovery assumes, albeit not without caveats, that government deficits are responsible for high interest rates. However, the extent to which deficits affect interest rates in the medium term is a question for which mainstream conventional economic theories have only ambiguous answers.

Perhaps the most widely-used approach for analyzing intermediate-run effects of deficits on interest rates is the Keynesian theoretical framework in which an increase in the deficit brought about either by an increase in government spending or a reduction in taxes has the effect of raising interest rates. This happens because an increase in the deficit leads to an increase in aggregate demand, and hence, in nominal GNP. The increased dollar volume of transactions requires more money. If the Fed does not accommodate the increased demand for money, the velocity of circulation must rise, a result which is made possible by a rise in interest rates. It may be noted that in the Keynesian framework higher interest rates are associated with higher GNP, which is quite different from an assertion that high interest rates prevent GNP from rising.

Now, I would like to say a few words about the connection between deficits and the rate of inflation. Although deficits can be observed to rise while the inflation rate falls, it is possible that an increase in the deficit can put some temporary upward pressure on the price level even if the deficit is not monetized.

With no supply-side effects considered, an outlay increase or a tax reduction, resulting in an equal increase in the deficit, causes a temporary increase in inflation, a permanent rise in the price level and in real interest rates, and a permanent decline in investment. The price pressure will be self-terminating if monetary policy remains unchanged.

Acceleration of money growth, in an attempt to counter the upward pressure on real interest rates, would prolong and accelerate the rate of inflation. Evidence on the extent to which deficits have been monetized is mixed, but there are some data that at least suggest that in recent U.S. history there has been a positive relationship between the percentage increase in the privately held Federal debt and the rate of growth of the monetary base. However, earlier this week, in his appearance before the House Banking Committee, Chairman Volcker offered assurances that the current large Federal deficit would not affect monetary policy.

Crowding Out

Another critique of fiscal policy characterized by large deficits emphasizes the so-called "crowding out" effect of excessive government borrowing.

The term "crowding out" is used loosely in popular discussions to convey the notion of a displacement of private investment by government absorption of real credit. But this notion is misleading and the concept of crowding out is murky.

Because credit is scarce, it is rationed by capital markets, and so even if government is totally absent from capital markets, some potential borrower is crowded out at any level of interest rates. Crowding out thus occurs in the process of market allocation of limited credit to the users able to pay the highest prices. But if, for instance, increased government borrowing is due to a corporate tax cut, cash flows internally generated by corporations will increase, and their credit demands will decrease commensurately. Also, the financial market process of crowding out does not contain any normative implications; that is, for a given level of government spending no general assertion can be made that financial crowding out is more deleterious to the economy than alternative methods of financing a given level of government expenditures.

The unique role of the government in crowding out other potential borrowers is not due to the sheer size of its credit demands. Rather it mainly reflects the facts that the government borrowing is interest rate insensitive, and that the government borrows to finance activities that predominantly do not add to future productive capacity. Since government spending is, from the standpoint of generating future growth, mainly nonproductive, it preempts some resources which otherwise could have been used for investment purposes. Rather than a financial phenomenon, the reduction in private investment and consumption reflects the resource allocation required when increased government expenditure demands compete with private investment and consumption for limited amounts of labor, capital and other productive inputs. Preemption of these productive factors by the government is sometimes labeled real, as distinct from financial, crowding out. Thus, apart from incentive effects, the impact of government spending on the economy in the medium term is the same independently of whether this preemption is financed by borrowing or by taxes.

It is also worth noticing that crowding out by the government, be it financial or real, need not necessarily have its major impact on business investment rather than households' consumption. All that can be said is that interest-sensitive spending by the private sector is reduced relative to noninterest-sensitive expenditures.

Incentive Effects

Incentive effects -- the increase in the supply of productive factors caused by improved incentives resulting from cuts in marginal tax rates -- are most important when the tax cuts are permanent. A tax cut financed by government borrowing may be viewed as temporary to the extent that the borrower expects that tax rates will be raised to retire the debt originally issued to finance the tax cut. Thus, a tax is more likely to be viewed as permanent when accompanied by a reduction in government spending. To the extent that a tax cut enhances economic growth, government borrowing to finance the tax cut will be less likely to crowd out private investment. This is because higher growth means, first, more tax revenues to partly offset initial revenue losses, and, second, more saving to meet the additional supply of government bonds. Therefore, there would be less upward pressure on real interest rates and on prices, resulting in more private investment and a different consumption pattern.

Short Remarks on the Long Run

Finally, I would like to offer a few brief remarks on the connection between government deficits and prices (including interest rates and exchange rates) in the long run. This problem is analytically very interesting, empirically intractable and extremely important from the standpoint of formulating appropriate policies.

One can only speculate on the effect of continuing deficits on interest rates and, more fundamentally, on economic growth.

In brief, for some combination of elasticities of supply of labor and private savings, a given structure of marginal taxes, a composition of government expenditures (in terms of growth-enhancing and growth-retarding categories), and other parameters, there will be some sustainable level of secular budget deficits relative to GNP, that is, essentially, not resulting in an explosive growth of the debt-to-GNP ratio. It is not possible to state a priori what that level might be but it need not necessarily be zero. The sustainable deficit-to-GNP ratio would be higher the greater are, among others, the responsiveness of supply of labor and savings to net rates of return; marginal output-to-labor and output-to-capital ratios; average marginal taxes; and the proportion of productive investments in total government spending. But satisfactory econometric estimates of these parameters do not exist yet.

However, simulations (performed by IMF economists among others) based on a range of reasonable values of relevant parameters indicate that the effects of tax rates cuts on the supply of aggregate output, while rather weak in the short run, may, in the long run, dominate the demand, i.e., the stimulative, effect. Therefore, it appears that the secular trend of deficits, if kept at a sustainable level may be more conducive to economic growth than if the corresponding amount of funds was raised by taxing the productive factors in the economy.

Finally, even if one were to accept the proposition that continuing high deficit-to-GNP ratios cause high interest rates, one could not conclude that these high interest rates will unavoidably result in slow economic growth. If tax cuts and tax reforms geared toward creating economic incentives, rather than increases in non-productive government spending, are the prime reason for deficits, high real interest rates may have no discernible effects on the rate of economic growth. In fact, evidence abounds that during periods of economic buoyancy and optimistic expectations, as, for instance, in the 1920s and 1960s, high investment levels and concomitant high growth rates may prevail for long stretches of time despite high (real) interest rates and, vice-versa, low (real) interest rates prevalent, for instance, in the 1970s by no means guarantee high investment levels or robust growth.

Empirical Studies

The theoretical analysis presented so far indicates that the effects of an increase in the deficit upon interest rates are ambiguous; larger deficits can coincide with either higher or lower interest rates.

Econometric -- statistical -- attempts to discern systematic relationships between deficits and real interest rates (while controlling for other influences such as the growth of money, business cycle effects, and effects of risk due to volatility in money growth) have failed to establish reliable evidence of such a relationship. Consider, for example, two recent studies by researchers who represent somewhat different approaches to macroeconomic analysis: Princeton University Professor Alan Blinder and Ohio State University Professor William Dewald who is editor of the Journal of Money, Credit, and Banking. If you like labels, Blinder is a Keynesian, while Dewald is a monetarist.

Dewald, in a January 1983 paper published by the Federal Reserve Bank of Atlanta, concludes that, "the high real interest rates in 1981 and 1982 are attributable to much higher and particularly much more variable inflationary expectations than normal," and, he continues, there are "a variety of credit market factors" which "offer a more promising explanation of high real interest rates than budget deficits which have been found to account for very little of recent high real interest rates."

In his December 1982 National Bureau of Economic Research Working Paper, Blinder says that on the basis of his statistical analyses, "The hypothesis that growth in debt does not help predict real GNP growth cannot be rejected" and "in sum, neither growth in bank reserves nor growth in national debt carries much information that is useful in predicting future real GNP growth."

A recent study by University of Rochester Professor Charles Plosser finds that increases in government spending raise interest rates, whether financed by borrowing or taxing.

He finds that substituting taxing for borrowing to finance the same level of government spending has little impact on bond prices or interest rates. Thus, to reduce interest rates, spending must be cut.

As you may know, Mr. Chairman, we at the Treasury are in the process of completing a comprehensive review of the set of issues I discussed in my testimony. This review will contain an annotated bibliography of academic literature on the subject, a critical analysis of relevant empirical work, and our own attempts to statistically identify determinants of interest rates. Your staff expressed interest in the monograph we are preparing and I would like to offer it for the record when it is completed.

Conclusion

Even though the relationship between the deficit and real interest rates and economic growth remains an open case, I am seriously concerned about future deficits because they are projected to be too large a share of GNP even though tax receipts are simultaneously projected to be at or near historically high levels -- between 19 and 20 percent of GNP. In this situation my conclusion is that Federal outlays must be trimmed. I prefer this course for several reasons.

First, a tax increase may simply buy more spending rather than less deficit. For example, the Administration consented to a $100 billion tax increase in TEFRA in exchange for nearly $300 billion in outlay reductions. Initially, only $53 billion in spending cuts were voted by the Congress. Subsequent budget resolution reclaims even those cuts and projects spending increases of about $114 billion.

Second, a tax increase probably would not be effective in reducing interest rates. Moreover, a business tax increase would have a direct and adverse effect on investment spending by reducing the rate of return on plant, equipment, and structures, while an individual income tax increase would discourage investment by small unincorporated businesses, and would reduce savings and raise labor costs, which would also retard investment and growth.

The case for raising taxes is based on the assumption that it will cause saving and investment to expand relative to consumption spending. The theoretical analysis and empirical evidence on this supposition is not convincing, and I believe that my skepticism is warranted.

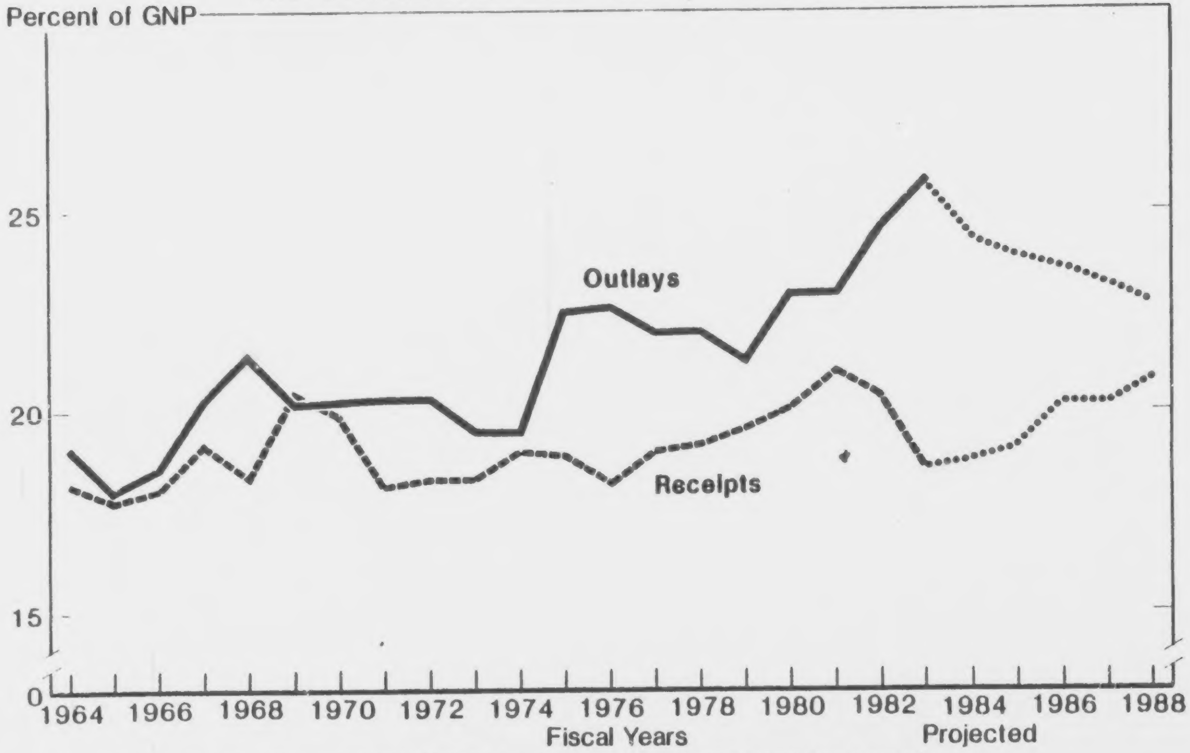
In my opinion the growth of Federal outlays should be slowed so that it runs about 20 or 21 percent rather than close to 25 percent of GNP. This goal should be the first priority of the Congress as it considers spending legislation in the current fiscal year.

Table 1

Comparison of CBO Projections of the Budget Deficit Under the Resolution and Administration Policies (by fiscal year, in billions of dollars)

	1983	1984	1985	1986
Deficit:				
Budget Resolution Policies				
Including Reserve Fund	$206.5	$191.6	$180.4	$146.4
Excluding Reserve Fund	206.5	182.7	176.1	142.8
Percent of GNP	6%	5%	5%	3%
Administration Policies	$206.5	$180.9	$178.5	$144.6
Outlays:				
Budget Resolution Policies				
Including Reserve Fund	$807.0	$869.0	$929.0	$989.0
Excluding Reserve Fund	807.0	860.0	924.0	986.0
Percent of GNP	25%	24%	24%	23%
Administration Policies	$807.0	$849.0	$917.0	$988.0
Revenues:				
Budget Resolution Policies	$600.0	$677.0	$748.0	$842.0
Percent of GNP	19%	19%	19%	20%
Administration Policies	$600.0	$668.0	$739.0	$843.0

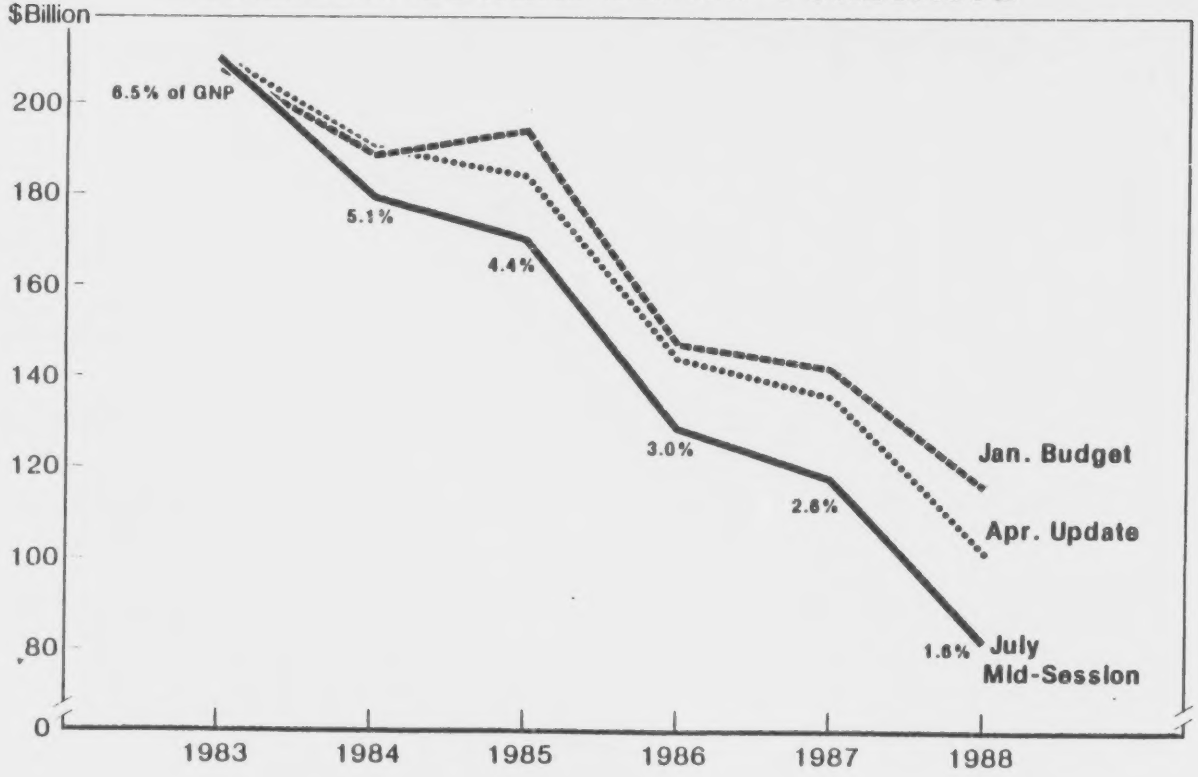
BUDGET OUTLAYS AND RECEIPTS AS PERCENT OF GNP, 1964-1988



Note: Outlays include off-budget federal entities. July 1983 GNP revisions are not incorporated.

August 9, 1983 A233

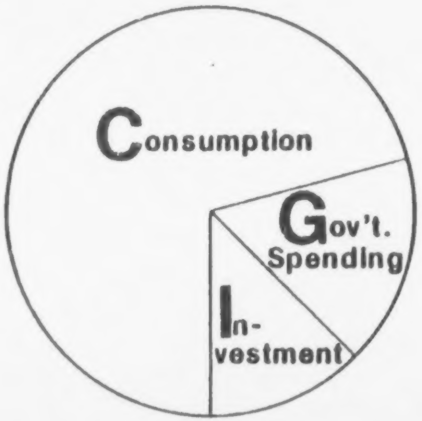
RECOVERY LOWERS DEFICIT FORECASTS



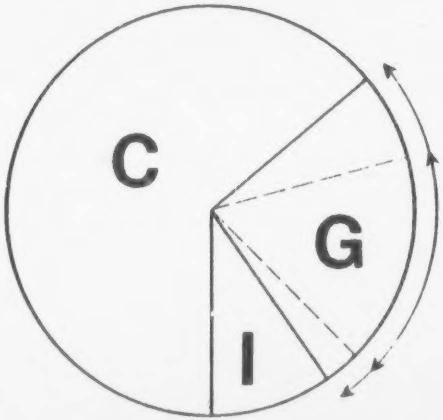
September 9, 1983 A58

GOVERNMENT SPENDING DOES THE "CROWDING OUT"

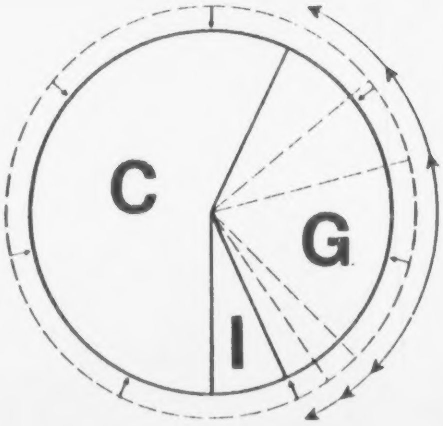
The Pie


Consumption
Gov't. Spending
In-vestment

A Bigger Slice for
Government, Smaller
Slices for Consumption
and Investment

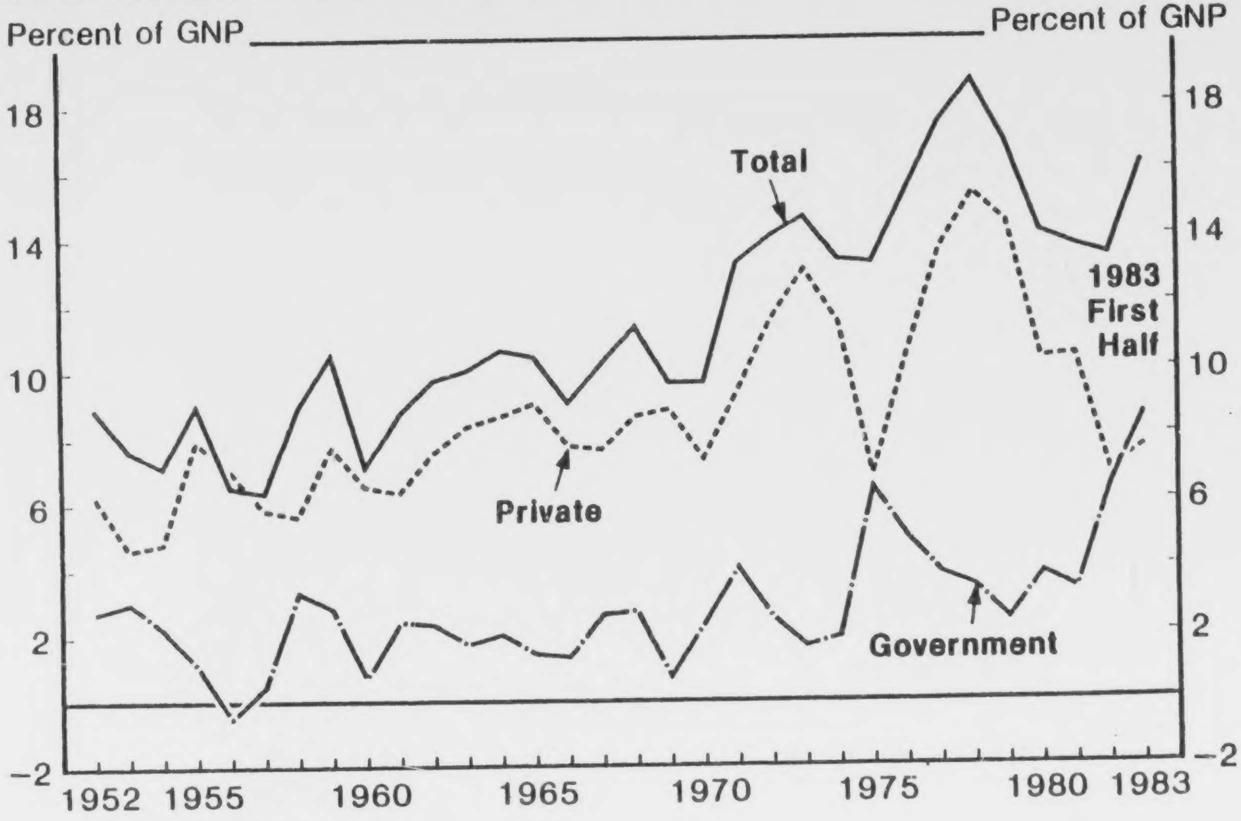


Result: A Shrinking
Pie, an Even Bigger
Slice for Government



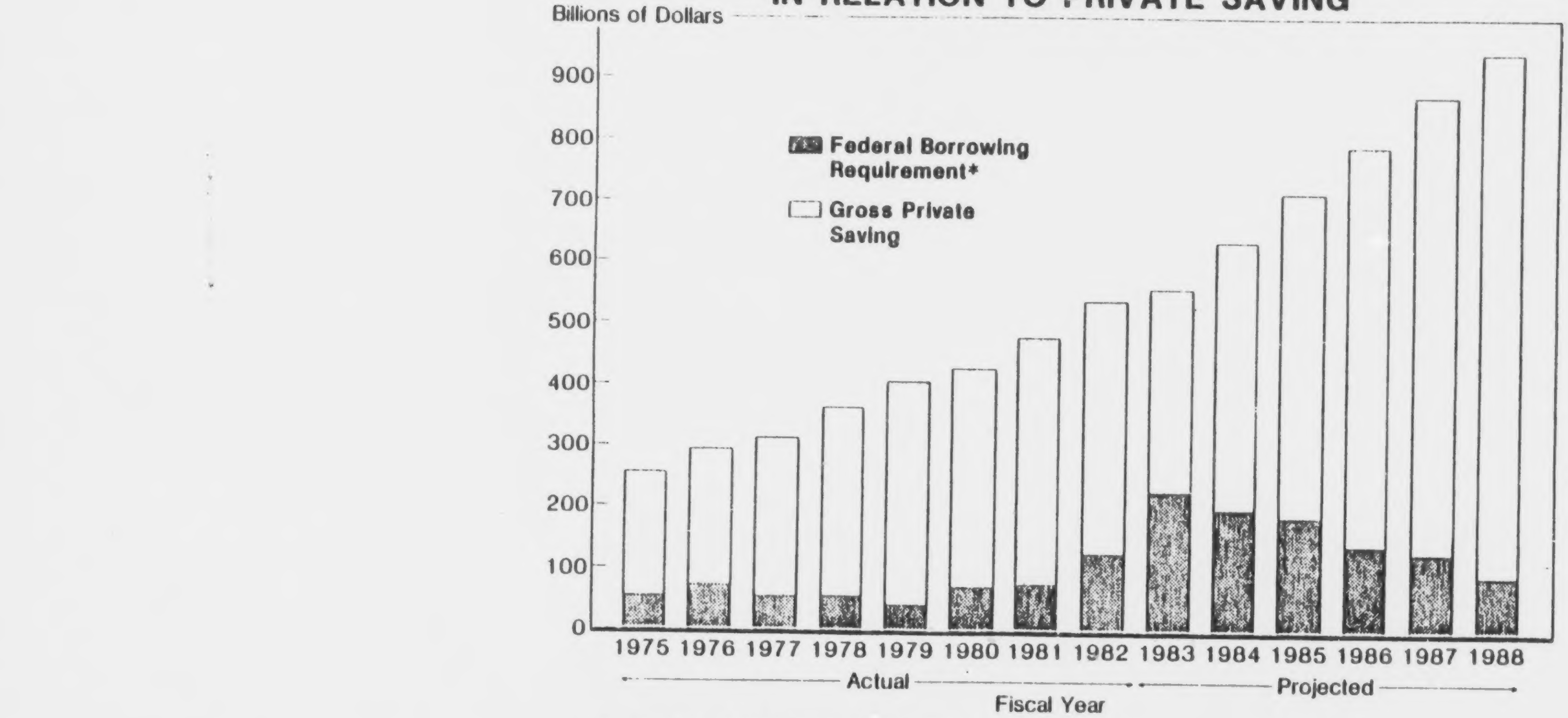
September 26, 1983 A68

GOVERNMENT SECTOR AND PRIVATE SECTOR BORROWING*



*By Nonfinancial Sectors

PROJECTED BORROWING REQUIREMENT IN RELATION TO PRIVATE SAVING



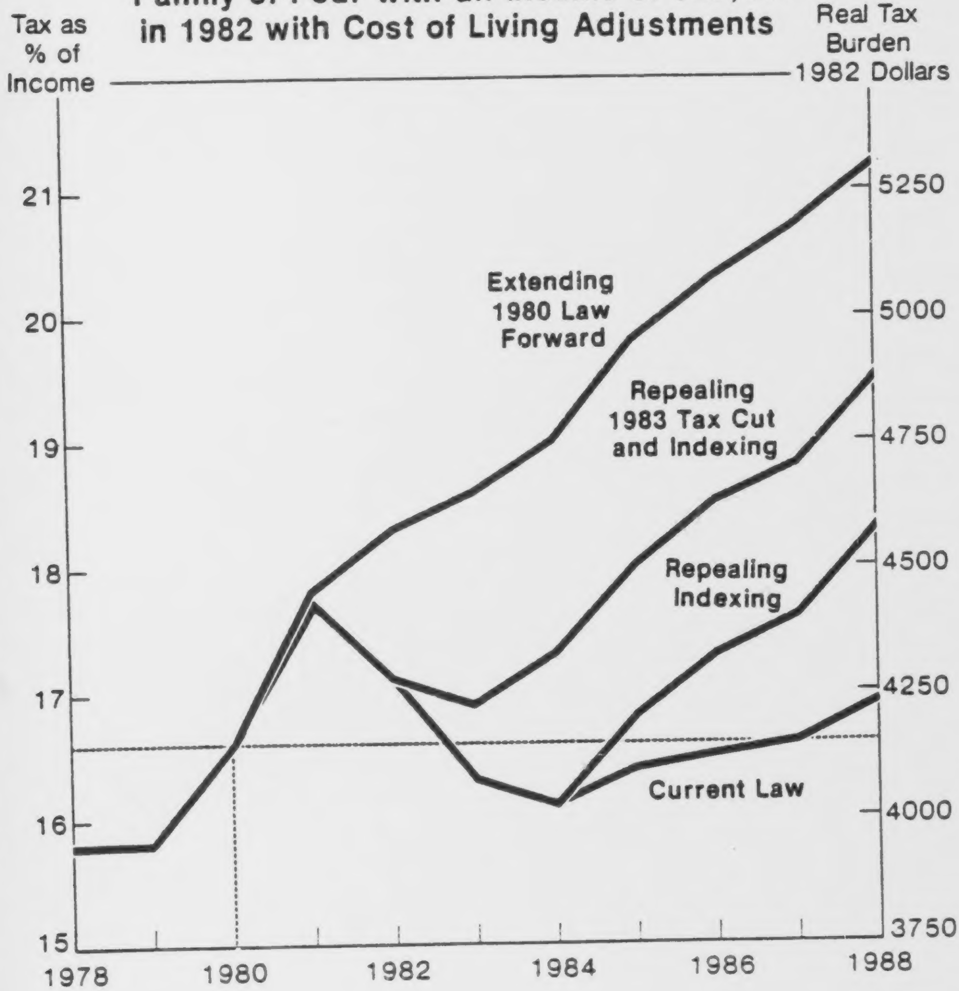
*Total budget deficit including off-budget entities.

Note: Saving flows do not reflect surpluses of state and local governments or inflows from abroad. Figures are based on July 1983 Mid-Session Budget and economic projections. Does not incorporate July 1983 GNP revisions.

August 8, 1983 A234

REAL TAX BURDEN (INCOME & EMPLOYEE PAYROLL TAX)

Family of Four with an Income of $25,000 in 1982 with Cost of Living Adjustments



July 21, 1983 A47

DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

ASSISTANT SECRETARY

Dear Senator Jepsen:

I am pleased to send to you three Treasury Department papers to be included with my testimony in the record of the hearing on the effect of deficits on interest rates, before the Joint Economic Committee on October 21, 1983.

The first paper, "Government Deficit Spending and Its Effects on Prices of Financial Assets," was prepared as a background paper for Secretary Regan at the time of the Williamsburg summit meetings in the spring of last year.

The second and third papers, "The Effect of Federal Deficits on Interest Rates: A Survey of the Literature" and "Interest Rates and the Federal Deficit: Some Empirical Tests," fulfill the promise in my testimony to furnish to you an annotated bibliography on the subject of deficits and interest rates, and the results of the Treasury Department's empirical study of the extent to which the Federal deficit affects interest rates.

I trust that you will find these papers valuable additions to the record of your hearing.

Sincerely,

Manuel H. Johnson
Assistant Secretary
for Economic Policy

The Honorable
Roger W. Jepsen
Chairman
Joint Economic Committee
United States Senate
Washington, D.C. 20510

Enclosures (3)

THE EFFECT OF DEFICITS ON PRICES OF FINANCIAL ASSETS: THEORY AND EVIDENCE

prepared by

The Office of the Assistant Secretary for Economic Policy
U.S. Treasury Department

January 1984

Introduction

Part I

Government Deficit Spending and its Effects
on Prices of Financial Assets

Part II

The Effect of Federal Deficits on Interest Rates:
A Survey of the Literature

Part III

Interest Rates and the Federal Deficit: Some Empirical Tests

INTRODUCTION

With the approach of the Williamsburg summit meeting last spring, Treasury Secretary Regan became increasingly aware that the finance ministers from the major industrial nations would ask the United States to reduce its deficits even if such reduction required a major tax increase. Those finance ministers put forth the thesis that the large U.S. deficits caused high U.S. real interest rates, which in turn caused investment funds to flow from their countries to the United States. They argued that if the United States would raise taxes and lower its deficits, its real interest rates would decline, the flow of investment funds to the United States from these other industrial countries would slow, and their economies would be better off.

Secretary Regan was also concerned about the high projected U.S. deficits. But with Federal budget outlays running at about 24-25 percent of GNP and tax revenues at about 19 percent of GNP, he took the position that the deficit reductions should be achieved by slowing the growth of outlays. In his analysis, spending reductions are much more effective than tax increases in promoting real growth and reducing interest rates, and monetary policy also has an important role to play.

To prepare for the Williamsburg meetings he asked Treasury staff to include in his briefing materials a background paper that reviewed the issue concerning the relationship between deficits and interest rates. Press reports of the meetings indicated that Secretary Regan, in reply to assertions that large deficits are the cause of high interest rates, remarked that economic theory showed that the effect of deficits on interest rates was ambiguous and that empirical studies of the relationship were inconclusive. In that connection, he noted that the Treasury staff briefing paper, "Government Deficit Spending and its Effects on Prices of Financial Assets," reviewed the major areas of controversy in the discussion and concluded that the issue remained open.

In October, I was asked to testify on the subject before the Joint Economic Committee. My testimony, drawn largely from the briefing paper, indicated that an annotated bibliography and the results of econometric tests of the relationship between deficits and interest rates would be submitted for the record.

To fulfill that commitment I am now submitting a three-part document. Part I contains the original background paper entitled, "Government Deficit Spending and Its Effects on Prices of Financial Assets." Part II is a paper entitled, "The Effect of Federal Deficits on Interest Rates: A Survey of the Literature." Finally, Part III is a paper entitled, "Interest Rates and the Federal Deficit: Some Empirical Tests."

The literature survey indicates some principal sources in mainstream macroeconomic analysis of the extent to which deficits affect interest rates. In reviewing this literature, the paper considers the measurement of the real deficit and public debt and the real interest rate; summarizes some econometric tests of the relationship between deficits and interest rates; and discusses briefly some major unsettled issues in the macroeconomic theory underlying the deficit/interest rate analysis. The conclusion from the literature reviewed is that the deficit/interest rate relationship remains an unsettled question.

"Interest Rates and the Federal Deficit" presents Treasury's empirical tests of the hypothesis that higher Federal deficits raise real interest rates. The tests make use of a particular type of equation for the determination of interest rates which is presented in a well-known 1970 article by Martin Feldstein and Otto Eckstein. The Feldstein-Eckstein equation is estimated over the same sample period as in the original article using the same data concepts, and then reestimated for the period 1965:I through 1983:II, the sample used in this paper. The reestimation indicates that the equation fits poorly in the latter period, and therefore needs to be respecified if it is to be used in the latter period. This is done and the results of the tests indicate that high deficits have had virtually no relationship with high interest rates in this time period.

Finally, I would like to acknowledge the contribution of the staff of the Office of the Assistant Secretary for Economic Policy in developing this document. Special thanks go to Jacob Dreyer, Ronald Hoffman, and James Girola.

Manuel H. Johnson
Assistant Secretary for Economic Policy
U.S. Treasury Department

PART I

GOVERNMENT DEFICIT SPENDING AND ITS EFFECTS ON PRICES OF FINANCIAL ASSETS

EXECUTIVE SUMMARY

The present and projected levels of budget deficits have recently become a source of international anxiety among policymakers. The concern dates from 1975 when, after the first oil crisis, the industrial economies were emerging from a world-wide slump. The term "crowding out" gained popularity in the financial press, and its celebrity was a gauge of heightened public uneasiness about the ill effects that growing budget deficits might have on economic performance.

In response to these concerns, beginning about 1976, budget policy was directed toward bringing deficits relative to GNP down to pre-1973 levels. But success has only been partial, because deficit financing was expanded in attempts to strengthen the sluggish recovery of the world economy in 1978 (as evidenced by the Bonn Summit agreement -- the "locomotive" initiative). On the eve of the second oil shock in late 1978, government deficits in the OECD area were some 2 percent of GNP greater than at the beginning of the decade.

Following the second oil shock monetary policy in many OECD countries turned restrictive in 1979-80, output and employment turned down, and combined budget deficits of the seven Summit countries -- which dropped to their late 1970's low of 1.7 percent of GNP in 1979 -- started climbing rapidly to reach 3.7 percent in 1982. The OECD forecast for the current calendar year for these countries is a deficit of about 4.5 percent of their GNP.

Rising concerns with deficits center not so much on current deficit-to-GNP ratios (which are virtually the same as in 1975 -- the first year of the recovery from the previous recession), but on prospective deficits. Traditionally, in popular discussions deficits have been viewed as affecting primarily macroeconomic targets of aggregate demand and price stability. Recently the role of budget deficits as automatic or discretionary countercyclical stabilization tools has become controversial. Moreover, questions about the effects of government deficit spending on long-term real economic growth have become a focus of attention and controversy.

The discussion of the relationship between budget deficits and economic growth often is phrased in terms of prices, that is, it is reduced to the question of the link between budget deficits and inflation and prices of financial assets, such as interest or exchange rates. This analytical strategy has been followed even though the connections between interest rates and investment or saving (or between the exchange rate and exports or imports) are not yet well understood. However, economic analysts have sought to establish a link between budget deficits and prices of financial assets, because it could lead to an assessment of the effects of budget deficits on selected macroeconomic aggregates.

The main purpose of this study is to review the issue concerning the effects of government deficit spending on interest rates and, to some extent, on exchange rates. Frequently encountered assertions about the causal links between deficits and prices of financial assets are critically examined and evaluated.

Contrary to some widely publicized opinions, these effects of government deficits are by no means unambiguous. The outcome depends, among other things, on the assumption made about the saving behavior of the private sector. When taxes are cut and government borrowing increased by an equal amount, some (perhaps all) of the tax cut will be spent on new government bonds.

The total amount of the tax cut will be used to purchase the new bonds if the taxpayer/bondbuyer perceives that the bond interest he receives will be used to pay the future tax required to service the government debt, and that the return of the principal of the bond will be used to pay the future tax required to retire the bond. In this case, aside from incentive and distributional effects, there should be no difference between higher deficit spending and spending fully financed by additional taxes -- there is no impact on the interest rate whether government spending is financed by taxes or borrowing.

The extreme opposite assumption is that there is no substitution whatsoever between taxes and borrowing by the government; extra after-tax personal income is devoted entirely to increased consumption, none is saved. Thus, no increase in private saving accompanies the additional government borrowing. With no increase in the supply of loanable funds, the additional demand for loanable funds inevitably results in upward pressure on interest rates.

Other facts that exert crucial influence on the outcome are the extent to which: deficits are caused by spending increases or tax cuts; financing is accomplished by monetization of the debt or by sale of government debt to the public; the tax cut reduces marginal tax rates thus improving incentives to supply productive labor and capital; the outlays financed by the deficits change the composition of government spending. The results are also influenced by the magnitudes of the private sector's various responses to the specifics of the policy changes -- responses which, for instance, depend on the openness of a country's capital markets to foreign investors, public expectations (about inflation and interest rates, for example) generated by a prospect of continuing deficits, and a host of institutional arrangements determining the adaptability of labor, product and asset markets to changing economic conditions.

In examining these relationships, the paper shows that many widely-advanced conclusions about the macroeconomic effects of deficits are not universally valid; as indicated above, they depend crucially instead, on the time horizon of the analysis, the institutional and behavioral assumptions underlying the analytical model used, the accompanying circumstances and policies postulated and the size of various economic parameters estimated or assumed. Also, the paper points out that there is no conclusive empirical evidence to support firmly the contending analyses. If anything, the existing empirical evidence points toward no systematic relationship between government budget deficits and interest rates or exchange rates.

GOVERNMENT DEFICIT SPENDING AND ITS EFFECTS ON PRICES OF FINANCIAL ASSETS

BACKGROUND AND COVERAGE

The current international concern among policymakers with present and projected levels of budget deficits is of relatively recent origin. Following the first oil crisis there was a general increase in budget deficits, but no great anxiety about their economic effects was evident initially. However, in 1975, as the industrial economies were emerging from the world-wide slump, the term "crowding out" gained popularity in the financial press. The celebrity of this term was a gauge of heightened public uneasiness about the ill effects that growing budget deficits might have on economic performance.

In response to these concerns, beginning about 1976, budget policy was directed toward bringing government deficits relative to GNP down to pre-1973 levels. Success has been only partial. Restrictive fiscal policies in 1976-77 resulted in a reduction of budget deficits within the OECD area by about 1 percent of GNP. But, in 1978, the sluggish recovery of the world economy prompted the adoption of a program of coordinated fiscal action among OECD countries and the Bonn Summit agreement on more expansionary policies (the "locomotive" initiative). Further modest increases in deficits began in that year, so that on the eve of the second oil shock in late 1978 the general government deficit in the OECD area was some 2 percent of GNP more than at the beginning of the decade.

The overall policy response to the second oil shock was meant to be less accommodative than to the first one. That is, the policy was designed to prevent higher oil prices from being built into domestic price expectations, even at a short-run cost of reduced output and employment. But while monetary policy in many OECD countries turned restrictive in 1979-80, success in reducing government expenditures proved much more elusive, in part because of the downturn in output and employment. Combined budget deficits of the seven Summit countries which dropped to their late 1970's low of 1.7 percent of GNP in 1979, started climbing rapidly to reach 3.7 percent in 1982. The OECD forecast for the current calendar year for these countries is a deficit of about 4.5 percent of their GNP.

Rising concerns with deficits center, however, not so much on current deficit-to-GNP ratios (which are virtually the same as in 1975 -- the first year of the recovery from the previous recession), but on the prospective deficits. In popular discussions deficits have been traditionally viewed as primarily affecting macroeconomic targets of aggregate demand and price stability. But, whatever are the merits of these rather restrictive interpretations of the role of budget deficits as automatic or discretionary stabilization tools, questions about the effects of government deficit spending on long-term real economic growth recently have become a focus of attention and controversy.

These effects of government deficits are by no means unambiguous, for even on a most rudimentary level of analysis the answer would depend, for instance, on whether deficits are caused by spending increases or tax cuts, or whether they are financed by monetization of the debt or by sale of government debt to the public. Similarly, conclusions may vary with such considerations as the composition of government spending that the deficits in question are supposed to finance; the kind of taxes contemplated as a substitute for deficit financing; the openness of a country's capital markets to foreign investors; public expectations generated by a prospect of continuing deficits; behavioral attitudes as reflected in, among others, saving habits; and a host of institutional arrangements determining the adaptability of labor, product and asset markets to changing economic conditions, all of which influence the effects of deficits on the allocation of resources within the private sector.

Although the relationship between budget deficits and economic growth is complex, the problem may be made analytically and empirically tractable by phrasing the discussion in terms of prices. Thus, often the analysis is reduced to the question of the link between budget deficits and the rate of inflation and the prices of financial assets, as exemplified by interest or exchange rates. Such analyses imply that the connections between interest rates and investment or saving (or between the exchange rate and exports or imports), and between real capital accumulation and economic growth are thought to be fairly well understood. Therefore, if a link between budget deficits and prices of financial assets could be established, a conceptual short-cut supposedly would allow the analyst to deduce the effects of budget deficits on selected macroeconomic aggregates themselves.

The main purpose of this paper is to review the issue concerning the effects of government deficit spending on interest rates, and to some extent on exchange rates. Frequently encountered assertions about the causal links between deficits and prices of financial assets will be critically examined and evaluated. More specifically, an attempt will be made to demonstrate that theoretical conclusions about these links have no universal validity but depend crucially, instead, on the time horizon of the analysis, the institutional and behavioral assumptions underlying the analytical model used, the accompanying circumstances and policies postulated and the size of various economic parameters estimated or assumed. In reviewing assertions about the economic effects of budget deficits, some of the concepts frequently (and rather loosely) used in popular discussion will be clarified, empirical evidence, to the extent that it exists and is germane to the issues discussed, will be presented and the relationship between budget deficits and a number of economic variables will be examined rather extensively within alternative frameworks of economic analysis.

SOME ASSERTIONS ABOUT THE EFFECTS OF DEFICITS ON THE ECONOMY

Assessments of the impact of budget deficits on interest (and exchange) rates vary from "crucial" to "none." As indicated earlier, contradictory assessments can result from a number of causes.

For example, one analytical framework maintains that there is absolutely no difference between higher deficit spending and spending fully financed by additional taxes. According to this line of argument government borrowing is a perfect substitute for taxation: personal income that is not taxed enters the saving stream, rather than being consumed, thus giving rise to an increase in supply of loanable funds equal to the incremental increase in demand for such funds attributable to additional government spending. The argument is, of course, symmetrical. An increase in taxes accompanied by a reduction in government borrowing requirements of the same amount shifts both the supply and demand curves for loanable funds to the left equally. Therefore, there is no impact on the interest rate whether government spending is financed by taxes or borrowing.

At the other extreme is the claim that there is no substitution whatsoever between taxes and government borrowing. This assertion relies on the supposition that personal income that is not taxed is devoted in its entirety to increased consumption. As a consequence, additional government borrowing is not accompanied by increased private savings. Thus, an incremental demand for loanable funds in conjunction with their unchanged private supply inevitably results in an upward pressure on interest rates.

In the same vein, an assertion is frequently heard that the existence of arbitrage in international financial markets ensures that capital flows respond instantaneously to incipient interest rate differentials among otherwise similar financial instruments denominated in various currencies. Therefore, to the extent that government borrowing does exert upward pressure on interest rates, it must also contribute to an appreciation of a currency generated by interest-rate-induced capital inflows.

A competing line of reasoning, which introduces expectational elements into the analysis, leads to the opposite result. Since deficit spending, as a reflection of lax fiscal discipline, gives rise to fears about future monetization of public debt, expectations of a currency depreciation in the future cause capital outflows into other currencies, thus making these expectations self-fulfilling.

- Short-term financial effects

The impact of budget deficits on prices of financial assets is often explained in terms of very short-term financial flows. Although they have superficial plausibility and internal logic, such explanations are, as a rule, based upon extremely simplified and partial analyses. Thus, blatantly contradictory conclusions about the effect of government borrowing on interest and exchange rates can result because of the extremely short-run focus of the analysis and reliance on the "other things being equal" simplification. For instance, it cannot be denied that, generally, a surge in Treasury financing on a given day or week is likely to push up interest rates higher than they would be otherwise. It is also likely that higher interest rates may attract capital from abroad and result in appreciation of the currency. Similarly, higher disposable income or larger corporate cash flow resulting from a personal or corporate tax cut, respectively, can be expected to be translated into larger cash balances held in the form of demand deposits. This would mean an increase in banks' liquidity and, consequently, a downward pressure on interest rates.

However, it must be recognized that these effects, even if they do in fact occur more or less systematically, are of very short-lived and reversible nature. At most it can be said that they describe reactions of financial markets to short-term excess flow demand or supply that must eventually (and rather rapidly) be eliminated by adjustments in the size and composition of holdings of financial and real assets by the private sector. In other words, the assumption of "other things being equal" can be justified in this context only in the very short run. As soon as people realize that the government's fiscal policies have changed, they will attempt (not always successfully) to adjust their economic behavior accordingly.

A failure to take account of the inherently short-term nature of the "other-things-being-equal" simplification can lead to absurd inferences. It has been observed, for instance, that tax refunds tend to coincide with a marked reduction in consumers' gross credit outstanding, implying that these refunds are used to improve consumers' net financial position. It would be patently incorrect, however, to infer from the observed pattern that tax cuts, i.e., additions to consumers' disposable income, always result in an equal increase in saving and have no effect whatsoever on consumption. Even in the very short run the elasticity of spending with respect to income is neither zero nor infinite. Thus, even using the most simple short-term partial equilibrium framework of analysis in which expectations play no role, one cannot make theoretically supportable assertions about the magnitude or perhaps even the direction of the effect of increased government borrowing on interest rates.

The same is true, perhaps even more so, with respect to the short-run determinants of exchange rates. For example, even if one should uncritically accept that increased government borrowing does contribute to higher interest rates, it is by no means self-evident that a currency appreciation follows. The theory of international financial arbitrage (as reflected in the so-called "Fisher open" formula) recognizes only that interest rate differentials among currencies tend to equal the corresponding annualized forward exchange rate premiums or discounts. If the interest rate differential, say, between the dollar and the yen, widens in favor of the dollar, the only thing certain is that the dollar forward premium will increase (forward discount will contract). This very definitely does not mean that the dollar will appreciate relative to the yen. In fact, in order to satisfy the interest parity condition, while the forward dollar appreciates, the spot dollar may have to depreciate relative to the yen. But, in any event, the short-term impact of increased government borrowing on the exchange rate cannot be unambiguously established by theoretical reasoning alone.

Direct examination of data on deficits and interest and exchange rates has not helped much to establish the effects of government borrowing on the prices of financial assets. There is simply no discernible correlation between changes in government borrowing and changes in either interest or exchange rates. This lack of correlation is not particularly surprising. One reason is that, in fact, things do not remain equal for very long. While changes in government borrowing requirements are relatively mild and occur rather slowly, a variety of constantly shifting factors influence interest and exchange rates, thus accounting for their much greater volatility. Furthermore, monetary authorities customarily try to suppress or moderate the volatility of prices of financial assets by intervening in money and foreign exchange markets, thus rendering the task of discerning a short-term empirical relationship between budget deficits and interest or exchange rates even more difficult.

Finally, whatever these short-run effects are, they have minimal influence on the longer-term evolution of real economic variables. While clearly of great significance to participants in financial markets, the causal link between short-term changes in government borrowing requirements and transitory responses of prices of financial assets is of a relatively minor importance for formulation of economic policy.

- Effects of deficits on cyclical recovery

Some analysts assert that high current deficits will prevent or abort the ongoing economic recovery. The argument behind this assertion is that big deficits cause high interest rates;

high interest rates depress expenditures for business investment, housing, autos, and output of other interest sensitive industries; and the economy cannot recover unless those industries recover. The conditions under which big deficits do or do not cause high interest rates will be examined at length in later sections.

But even if big deficits cause high interest rates, this argument is very questionable because inadequate demand for some categories of output need not prevent a recovery if expenditures for other categories of output (such as consumption of nondurables or defense spending) are sufficiently large. Recovery depends on total production and sale of goods and services, rather than particular categories of goods and services. Large deficits do not reduce total economic activity. Depending on economic conditions (including the rate of money growth), the current deficit may put some upward pressure on interest rates or other prices, but this would indicate that there is more than enough, rather than too little, demand for the available supply.

There is no economic theory to support the assertion that a large current deficit will depress the economy. At most, a large deficit that puts upward pressure on the interest rate may contribute to a bias in the composition of total demand against the output of interest sensitive industries. The extent to which this bias will be pronounced is an empirical matter.

Another assertion is that large expected _future_ deficits will prevent the recovery. The argument behind this assertion is as follows. Future deficits make expected future interest rates high. That keeps present long-term interest rates high, because today people will not lend long term at rates that are below the rate they expect to obtain several years from now. This argument implies that interest rates are higher than the level required to finance the current deficit, given current available loanable funds (savings).

One version of the argument is that prospective deficits result in higher _expected_ inflation, which results in expected higher nominal interest rates in the future, thus causing higher nominal rates now. But even if future deficits cause higher expected inflation (which is by no means self-evident), this argument claims that nominal -- not real -- interest rates rise. However, in a rational world high nominal rates should not restrain investment unless expected real rates also rise.

Another version of the argument, in terms of real interest rates, is rather convoluted. It goes as follows. The current (i.e., FY 1984) deficit does not depress the 1983 economy, and the expected 1988 deficit will not depress the 1988 economy. But the expected 1988 deficit is so large, given the expected 1988 private demand for loanable funds, that it results in an expected interest rate in 1988 that is so high it impedes a return to full employment in 1983. Arbitrage between present (1983) and future (1988) interest rates then keeps 1983 long-term interest rates higher than is consistent with economic recovery in 1983.

This argument is questionable for two reasons. First, it assumes that lenders and borrowers make very different predictions. Lenders are influenced by the prediction of future high interest rates in a strong economy. In contrast, borrowers who would invest in plant and equipment are assumed to reject that prediction -- acceptance of it would lead them to invest today, even though rates are high, because of the good prospect ahead in 1988. Second, if lenders will not lend at long term then it would appear they would lend their funds at short term, thus driving down short-term rates and contributing to the recovery that way. In any case, these arguments that current or future deficits prevent recovery are flawed.

EFFECTS OF DEFICITS ON INTEREST RATES

The foregoing discussion of the likely effects of government deficits on the prospects for recovery assumes, albeit not without caveats, that government deficits cause high interest rates. The validity of this assumption will now be examined. The following sections will reveal that the extent to which deficits affect interest rates in the medium term is a question for which mainstream conventional economic theories have only ambiguous answers.

° Deficits and Interest Rates in a simple Keynesian framework

Perhaps the most widely-used approach for analyzing short- and intermediate-run effects of deficits on interest rates is Keynesian economic theory. The Keynesian tradition of economic analysis has produced a set of conceptual tools which provide a framework for analyzing the links between government policy and other macroeconomic variables.

Apart from the special case of the liquidity trap, which is discussed below, the basic Keynesian approach gives the result that an increase in the deficit brought about either by an increase in government spending or a reduction in taxes has the effect of raising interest rates. The logic of this result is as follows. First, the increase in the deficit increases aggregate demand for final output. In the case of more government spending, the additional spending adds directly to demand. In the case of a tax cut, the income that people do not have to pay in taxes increases their spending.

Thus, the larger deficit increases final demand and raises nominal GNP. In the Keynesian analysis if the economy is operating at a low level of activity the nominal increase will come primarily through an increase in real GNP, while if the economy is near full employment of resources the increase will primarily be in prices. With a higher nominal GNP the volume of economic transactions in nominal terms is greater, with the result that people need more money to carry out the transactions. Hence, the expansion of the deficit increases the demand for money.

Assuming that the central bank does not accommodate this increase in money demand by increasing the growth rate of the money supply, it is necessary for the velocity of money to rise to meet the enlarged transactions demand for money. This comes about through a rise in interest rates. The enlarged transactions demand for money causes interest rates to rise as transactors are willing to pay more for the use of money. At the same time, an increase in interest rates makes money less attractive as an asset relative to other interest-bearing assets, because the interest rate on money is generally less than that on other assets, so money demanded for asset holdings falls. This decline in money demand induced by higher interest rates offsets the increase in money demanded for transactions, and so interest rates stop rising when the demand for money is brought into balance with the money supply.

- The role of bonds

The discussion presented above shows that in the most basic Keynesian framework an increase in the deficit brought about by a more expansionary fiscal policy without an increase in the money supply tends to raise interest rates. The basic Keynesian frame-framework can be elaborated by introducing government bonds into the analysis in at least two ways. In both cases the bonds are regarded as wealth and the bond effect reinforces the tendency of the higher deficit to raise interest rates.

First, the bonds are assumed to be a form of wealth which substitutes for the wealth embodied in real capital. Under this assumption, additional government bonds issued to finance an additional deficit thus are perceived to increase wealth. As wealth (substitutes for capital), the new bonds have the effect of increasing aggregate private consumption spending (reducing saving). This increase in consumption is another addition to final demand, and following the same logic as before, the increase in aggregate demand raises the demand for money and causes an increase in interest rates. This bond effect reinforces the increase in government spending or the reduction in taxes to raise demand and thereby raise interest rates.

A second way in which the increase in bonds can raise interest rates is that the bonds can affect money demand directly. The presence of additional bonds in the economy increases the ratio of bonds to money in investors' portfolios. In response, people attempt to increase their money holdings relative to their bonds by selling bonds. This drives up interest rates, and interest rates continue to rise until the bonds have become so attractive that people are willing to hold them.

The foregoing analysis shows that the typical Keynesian result of an increase in the deficit is a rise in interest rates. However, a special case in which the fiscal expansion does not raise rates is the case of the liquidity trap. The liquidity trap is a situation in which people believe that interest rates are so low that they cannot fall further. Indeed, in this situation, interest rates are expected to rise and the prices of assets (such as bonds) are expected to fall so low that an asset purchaser can expect to sustain a capital loss which counterbalances the interest earned on the asset. Fearing capital loss, people hold money and other very liquid assets rather than long-term assets. Thus, an increase in the demand for money for transactions purposes can be met simply by drawing down enlarged holdings of money without any rise in interest rates. Hence in this case an increase in the deficit does not raise interest rates. The practical significance of the liquidity trap, which is believed to occur mostly in depressions, is a subject of dispute.

° Some modifications of the Keynesian framework

The value of the Keynesian paradigm for practical policy analysis depends upon the extent to which it accurately and completely models economic reality. To the extent that the Keynesian model abstracts from important relationships, it may offer inaccurate predictions about the effect of deficits upon interest rates.

Indeed, it appears that the Keynesian model excludes important economic effects that may well dominate the results in certain circumstances. For one, the demand for money may decline when there is a rise in inflation expected in the near future. This is because inflation reduces the real value of money holdings. Given this effect, an increase in aggregate demand brought about by expansive fiscal policy and higher deficits need not raise interest rates, since people may perceive the additional aggregate demand as potentially inflationary and reduce their demand for money to be held as an asset. In essence the rise in expected inflation has the same effect as an increase in the money supply.

Another effect upon the demand for money is the effect of the business cycle. An increase in demand for output stimulated by fiscal policy may induce a cyclical expansion. In an expansion people have more confidence in their immediate future; hence they are more willing to invest in long-term capital and they have less need to hold money or other short-term liquid assets to protect themselves against risk. In such a situation the demand for money to be held as an asset falls, and this tends to reduce interest rates.

A very important set of considerations comprises incentive effects of a marginal tax rate cut. Even though taking these effects (sometimes referred to as "supply-side" effects) fully into account is certain to affect radically the conclusions yielded by traditional Keynesian analysis, this paper can give such incentives only the most rudimentary treatment rather than thorough analysis.

Incentive effects of tax rate cuts can operate not only in the long run, but over shorter periods such as a business cycle as well. The influence of supply-side effects on real interest rates is ambiguous. For instance, a marginal tax rate cut which raises the deficit can stimulate the supply of real output and induce a cyclical expansion in which the demand for money falls and consequently interest rates fall too. This supply-side effect complements the demand-side effect outlined in the previous paragraph in which a tax cut or other fiscal measure was perceived to stimulate a cyclical expansion by raising demand.

Another possibility is that the marginal tax rate cut could lower real before-tax interest rates by raising the after-tax real rate of return. The rise in the after-tax return can be expected to induce increased investment, which increases the intensity of capital and lowers its marginal productivity, thus tending to reduce real before-tax interest rates.

In contrast, a marginal tax rate cut can raise the profitability of capital investment and the after-tax return to capital, and have the effect of stimulating innovation. Additional innovation raises the marginal productivity of capital, and since the real before-tax interest rate is ultimately determined by the productivity of capital, a tax cut which raises capital productivity leads to a higher real interest rate, both before and after tax.

° The treatment of wealth

The foregoing discussion has dealt mostly with extensions to and modifications of the basic Keynesian framework. However, another school of thought derives significantly different conclusions regarding the effects of deficits on interest rates, even in the short or intermediate run. As mentioned earlier, some economists argue that bonds issued by the government are not perceived as net wealth by those who hold them. As discussed below, if these bonds are not considered to be wealth, a large part of the traditional Keynesian approach must be called into question.

The argument that government bonds are not wealth is based upon the fact that the bonds must be redeemed or refinanced at a later date. If the bonds are redeemed by a general increase in taxes, taxpayers, on average, face a future tax liability, and this liability offsets, at least in part, the wealth embodied in the bonds. Similarly, if the bonds are monetized in the future, the money created to redeem them will create future inflation, and this will reduce the future purchasing power of money and offset the wealth embodied in the bonds. In these cases rational individuals will adapt their saving behavior to achieve their desired accumulation of real assets. It is only if the bonds are indefinitely refinanced by more bonds that the future tax liabilities or the inflation and its attendant loss of purchasing power are avoided.

While in the aggregate government bonds are certainly not wealth, many researchers argue that in practice, for a number of reasons, bonds may be perceived as wealth by their holders and therefore the bonds should be regarded as wealth for the purpose of analysis. For one thing, people may not recognize the future tax liability implied by the bonds. Or they may consider it to be so far into the future that they either discount is substantially, or they presume they will not be alive and future generations will have to bear the burden of paying off the liability. Moreover distributional effects may be important; people other than those who own the bonds may have to redeem them. In particular, those who hold bonds may have a higher propensity to save and invest than those who will pay future taxes to redeem the bonds. To the extent that government bond-holders do not face a future liability, they will tend to regard the bonds as a form of wealth substituting for real capital, and in the aggregate the bonds will elicit behavioral responses having the same effect as an increase in wealth.

When the idea that government bonds are not considered wealth is incorporated into the Keynesian model the results change significantly. For example, if bonds are not viewed as wealth, the effect (discussed earlier) of additional bonds in increasing consumption spending, and thereby increasing overall spending and interest rates, disappears, since this effect is based upon the bonds being perceived as wealth. Similarly the effect of additional bonds in raising directly the demand for money and interest rates also disappears, since if bonds are not wealth they do not affect people's portfolios, and there is no need for individuals to adjust their portfolios when the number of bonds in the economy increases.

If bonds are not perceived as wealth by their holders, the basic Keynesian conclusions about tax cuts unaccompanied by spending reductions also change. For if bonds are not considered wealth, a tax cut has little effect upon aggregate demand, and its effects are felt almost entirely on the supply side. The logic of this result follows from the fact that the bonds issued to finance the increased deficit brought about by the tax cut create an equal offsetting future liability. A cut in current tax liability, accompanied by a future tax liability of equal present value and a current bond purchase equal in amount to the tax cut leaves financial positions unchanged in the aggregate. Since aggregate financial positions have not changed, aggregate demand will be little affected, and so interest rates will also be little affected through this channel. The primary effect of the tax cut is through incentive effects on the supply side. As analyzed above, such supply-side effects can lead under different assumptions to either a rise or a fall in interest rates.

The assumption that government bonds are not wealth similarly alters the Keynesian conclusion about the effect of an increase in the deficit brought about by an increase in government spending without a balancing increase in the level of taxation. However, in the case of government purchases there are additional effects, since the government demand preempts real output, and that real output is not available for private consumption or investment. Insofar as that output is no longer used for private capital formation, capital intensity will be lower, and this will tend to raise the productivity of each unit of capital and raise real interest rates. On the other hand the productivity of capital and real interest rates are also affected by the uses made of output bought by the government; so depending upon these uses the productivity of private capital can be either enhanced or diminished.

- Comments on Empirical evidence

The theoretical analysis presented so far indicates that the effects of an increase in the deficit upon interest rates are ambiguous; a situation of rising deficits can coincide with a situation of either rising or falling interest rates. In addition to the reasons given so far, deficits cannot be expected unambiguously to be causally related to interest rates, because a deficit is a residual obtained by subtracting two items, government expenditures and revenues, which usually have very different effects upon the economy.

The same deficit can arise with many different levels of expenditures and revenues, and the economy will behave differently when expenditures are large than when they are small even if the deficit is the same in either case. Similarly the effect of the deficit depends on whether it arises from a tax cut or an expenditure increase. An increased deficit brought about by a tax cut targeted toward stimulating investment may lower pre-tax real interest rates while the same deficit increase brought about by new unproductive government expenditures would probably raise the pre-tax real interest rates. Similarly, the same deficit can arise with the same levels of expenditures and revenues but with different compositions of the expenditures and revenues, with consequent different effects on the economy and real interest rates. Hence for the deficit per se to have an effect on real interest rates it would also have to vary systematically with the level of revenues and expenditures and their composition. However, it is unlikely that such a systematic relationship, if it exists at all, has been very strong, so deficits cannot be expected to be related to interest rates.

Attempts to discern systematic relationships between deficits and interest rates by examining statistical correlations among historical data confirm the ambiguity of conclusions arrived at through theoretical speculation. Studies of these relationships strongly indicate that there is no systematic connection between high deficits and high interest rates over the cycle. If anything the opposite relationship appears to obtain, in which interest rates rise in expansionary phases of the cycle when deficits contract, and fall in contractionary phases when deficits tend to expand. The historical relationship between deficits and interest rates is pictured in Chart 1.

One could argue that this evidence merely reflects the substitution between public and private demand for real credit in consecutive phases of economic cycles, as is depicted in the accompanying Chart 2. Consequently, the argument goes, if it were not for government deficits (especially during expansionary phases) interest rates would have been even lower and the attendant economic expansion stronger. In order to test hypotheses like this, and to examine more precisely the relationship between deficits and interest rates, it is necessary to control for other influences upon interest rates so that the effects of deficits can be isolated. Such other influences include the effect of the growth rate of money, general business cycle effects, and the effects of risk in markets as induced by volatility in money growth. Numerous econometric studies have tried to isolate the effects of deficits, and they have failed to establish reliable evidence that government deficits have a noticeable effect on interest rates.

DEFICITS AND EXCHANGE RATES

The effects of deficits on exchange rates may be even more complex than the effect upon interest rates. In a basic Keynesian model the exchange rate is implicitly determined by net exports which, in turn, essentially depend upon the income propensities to import at home and abroad. In such a model, without the capital account specified, an increase in the government deficit leads to an expansion of aggregate demand. For a given domestic propensity to import, this worsens the trade balance and sets the stage for a depreciation of the domestic currency. But since in this model an increase in the deficit also causes the interest rate to go up, a higher interest rate is associated with a weaker, not a stronger, currency.

This Keynesian result stands in stark contrast to widely held views, especially in financial circles, about the relationship between interest and exchange rates and, by extension, between government deficits and exchange rates. These contrasting views are apparently derived from monetarist models of exchange rate determination. In a basic monetarist model the exchange rate is dependent upon the ratio of money supplies of two currencies per unit of output in the corresponding countries. The exchange rate is therefore essentially a monetary phenomenon. If, however, the money supplies are held constant and in one country, fiscal expansion stimulates aggregate demand or incentives induce higher aggregate supply, the money supply per unit of output is reduced in this country and its currency would appreciate. The exact mechanism which brings about this appreciation can be given alternative interpretations. A reduction of the money supply relative to output may be translated into current or expected lowering of prices, including the prices of exportables and import-competing goods. The drop in prices, by improving the country's competitiveness, then should bring about an improvement in the trade balance and the resulting strengthening of the currency -- just as in a Keynesian model. Alternatively, expansion of output in conjunction with a non-accommodating monetary policy may be interpreted as a liquidity squeeze resulting in higher interest rates that would induce capital inflows from abroad and make the currency appreciate.

Thus, the monetarist analysis can lead to a trade (or current account) surplus and a capital account surplus. Of course these results are incompatible, or at least unsustainable over a longer period of time, because the only way a trade (or current account) surplus can be financed is by a capital account deficit. Furthermore, monetarist models disregard income effects on trade flows which are the focus of Keynesian analysis, as indicated earlier. When the analysis of fiscal expansion combines these income effects in a basic Keynesian model with the price depressing and interest rate boosting effects imbedded in monetarist models, the result is ambiguous. While the income effects would tend to worsen the trade balance and thus weaken the currency, the price effects would tend to improve the trade balance and thus strengthen the currency, and the interest rate effects would tend to improve the capital account and thus strengthen the currency even further.

The actual outcome of a fiscal expansion would depend on the potency of exchange rate responses to these effects. Empirical estimates of the relevant parameters are very imprecise and even the most sophisticated quantitative models of exchange rate determination are notoriously unsuccessful in explaining past, let alone predicting future, exchange rate movements.

There is no reliable empirical evidence to support the contention that large government budget deficits cause appreciation of the country's currency, at least as far as the dollar is concerned. As a matter of record the opposite hypothesis, if anything, appears to be better supported by historical data. During the past ten-year period of floating exchange rates, the dollar almost invariably appreciated in contractionary phases of the business cycles when U.S. government deficits were growing, and depreciated in expansionary phases when U.S. government deficits were declining. Moreover, this pattern of exchange rates changes occurred despite frequent efforts of governments, including the U.S. Government, to counter cyclical exchange rate movements.

DEFICITS, INFLATION AND THE MIX OF OUTPUTS

Can the deficit affect inflation? The answer is that although deficits can be observed to rise while the inflation rate falls, it is possible that an increase in the deficit can put some temporary upward pressure on the price level even if the deficit is not monetized. In other words, although monetary policy is the dominant influence on inflation, the deficit (as well as changes in inflationary expectations, and exogenous supply shocks) has the potential for affecting the price level.

When taxes are cut and government borrowing increased by an equal amount, some of the tax cut will be spent on the new government bonds. According to the earlier detailed analysis, the total amount of the tax cut will be used to purchase the new bonds if the taxpayers/bond buyers assume that the bond interest received will be used to pay the future tax required to service the government debt, and that the return of the principal of the bond will be used to pay the future tax required to retire the bond.

In any other case -- unless the debt is monetized, and assuming that the tax cut does not take a form which changes savings incentives and causes a change in the percentage of income saved -- it would appear that some of the tax reduction will be saved and some will be spent on private consumption. Relative price (incentive) effects aside, because not all of the tax cut is saved, the demand for bonds rises by less than does the supply. With the growth of money unchanged, the shift in the demand and supply of bonds puts upward pressure on real interest rates.

Thus, real interest rates rise and discourage investment demand unless a tax cut is of a type which raises the after-tax rate of return to capital or lowers the user cost of capital. But higher interest rates also encourage asset holders to shift some money balances into bonds (financial assets). Therefore, the real interest rate increase does not reduce investment demand by as much as the increase in consumption, so total demand rises. To the extent that total demand increases relative to the total supply of goods and services, (still assumed, for analytical simplicity, to be unresponsive to the tax cut), upward pressure is exerted on prices. The pressure will stop once prices have risen by enough to restrain total demand from exceeding total supply.

The price pressure will be self-terminating if monetary policy remains unchanged. Because the higher prices reduce the real value of money balances, asset holders shift some of their wealth out of bonds (financial assets) and into money. As a result, there is a secondary rise in real interest rates which discourages investment demand by enough to offset the initial increase in consumption demand.

Thus, in this analysis with no supply-side effects considered, a tax reduction accompanied by an equal increase in the deficit causes a temporary increase in inflation, a permanent rise in the price level and in real interest rates, and a permanent decline in investment.

Acceleration of money growth in an attempt to counter the upward pressure on real interest rates would prolong and accelerate the rate of inflation. But eventually real interest rates would rise by enough to reduce investment to equal the increase in consumption. Evidence on the extent to which deficits have been monetized is mixed, but there are some data that at least suggest that in recent U.S. history there has been a positive relationship between the percentage increase in the privately held Federal debt and the rate of growth of the monetary base.

If, in contrast, monetary policy maintains a disinflationary path for the economy, the growth of money may be reduced to forestall any inflationary pressure from the deficit. In the current U.S. experience the reduction in money growth has been more than the required offset, thus excessively depressing the demand for financial assets and causing higher real interest rates without the occurrence of any observable upward pressure on prices.

The deficit can affect the mix of output, but the process may be a complicated one. As is indicated in the foregoing analysis of the process by which the deficit can affect inflation, in the absence of supply-side effects, the deficit increase will discourage investment to the extent that it results in a direct increase in current consumption. The adjustment occurs as the increased deficit causes the supply of bonds (financial assets) to exceed the demand, thereby putting upward pressure on real interest rates. Higher real interest rates then crowd-out private (and state and local government) borrowing in the competition for available loanable funds.

° A digression on crowding out

The term "crowding out" is used loosely in popular discussions to convey the notion of a displacement of private investment by government borrowing at high interest rates. But this notion is misleading and the concept of crowding out is murky.

Because credit is scarce it is rationed by capital markets, and so even if government is totally absent from capital markets, some potential borrower is crowded out at any level of interest rates. More precisely, producers whose expected rate of return on new investment is less than their cost of borrowing to finance this investment, or consumers who delay their purchase rather than pay the cost of borrowing to finance present consumption, will be crowded out. Crowding-out thus refers to the financial market process of allocating limited credit to the users able to pay the highest prices. To the extent that the scarcity of credit is alleviated, for example by an autonomous increase in savings, room is made for less profitable investment projects (or less desirable consumption expenditures) that would be crowded out if the supply of loanable funds were less abundant.

If the government were just another borrower in the credit market, its role would not be materially different from that of, say, AT&T, which because of the sheer size of its credit demands presumably displaces many small businesses. The unique role of the government in crowding out other potential borrowers does not, however, have to do so much with the size of its claims on the pool of available credit, as it does with (a) the fact that the government borrowing is interest rate insensitive, and (b) the fact that the government borrows to finance predominantly activities that do not add to future productive capacity. In these two respects the government is indeed different from any other borrower.

The first distinction appears to imply that for a given supply schedule of loanable funds, borrowing by the government raises the interest rate thereby crowding out some marginal borrowers. However, several qualifications deserve mention in discussing this process of financial crowding out. First, if for instance, increased government borrowing finances a corporate tax cut, cash flows internally generated by corporations will increase and demand for credit by these corporations will decrease commensurately. Thus, increased borrowing by the government will coincide with decreased borrowing by the private sector. Second, insofar as the supply of savings expands as the interest rate rises, the amount of credit foregone by potential private borrowers will be smaller than the increase in government borrowing. Third, the concept of financial crowding out does not contain any normative implications; that is, for a given level of government spending no general assertion can be made that financial crowding out is more deletorious to the economy than alternative methods of financing this level of government expenditures.

The implications of the second distinction between the government and other borrowers are more clear cut and also more important for proper evaluation of the consequences of government spending on credit markets. Since government spending is, from the standpoint of generating future growth, mainly nonproductive, it preempts some resources which otherwise would have been used for investment purposes. Even though the lower rate of investment results from interest rate adjustments in the bond market, this result is not essentially a financial phenomenon. The reduction in investment reflects the resource allocation required when increased government expenditure demands compete with private investment and private consumption for limited amounts of labor, capital and other productive inputs. Preemption of these productive factors by the government is sometimes labeled real, as distinct from financial, crowding out and its effect on the economy in the medium term is the same independently of whether this preemption is financed by borrowing or by taxes. This conclusion may be altered, however, when incentive effects are recognized.

INCENTIVE EFFECTS

Incentive effects -- that is, the increase in the supply of productive factors caused by improved incentives resulting from cuts in marginal tax rates -- are most important when the tax cuts are permanent rather than temporary. Permanent tax cuts provide permanent incentives to alter the supply of labor and capital. A temporary tax cut provides only the incentive to alter the timing of that supply; if more is offered now, less will be offered later when the temporary tax cut is removed. A tax cut financed by government borrowing may be viewed as temporary to the extent that the borrower expects that tax rates will be raised in order to retire the debt issued to finance the tax cut in the first place. This is the reason why a tax cut accompanied by a reduction in government spending is more likely to be viewed as permanent than a tax cut not matched by a reduction in government outlays.

To the extent that a tax cut enhances economic growth, government borrowing to finance the tax cut will be less likely to crowd out private investment. This is because more growth means more saving, that is, more available loanable funds to meet the new supply of bonds. In this case, there would be less upward pressure on real interest rates and on prices, resulting in more private investment and a different consumption pattern than would occur without a tax cut and the corresponding increase in government borrowing.

POTENTIAL GROWTH AND THE STRUCTURAL DEFICIT

The extent to which a tax cut enhances potential economic growth has important implications for estimating and interpreting the effects of a deficit increase associated with a tax cut. Potential output growth is a concept used to characterize the performance of an economy that is operating on its long-run output trend with all available resources fully employed in their best uses. The concept is rather subjective because it is defined with terms such as available, fully and best. Furthermore, it is not defined in terms of relevant alternative dimensions of policy -- e.g., a disinflation path or a certain income distribution pattern, etc. -- taken as a first priority of economic policy.

However, the concept of potential economic growth is estimated for some specified time period assumed to be policy relevant, as the sum of the growth rates of the labor force, productivity per worker, and annual hours of work per worker. Given this standard of potential economic growth, an estimate of the Federal deficit can be separated into a cyclical component and a noncyclical or structural component. The cyclical component of a given deficit is the portion that exists because the economy is operating at a level of activity below potential -- the assumed high or full employment level. The difference between the estimated total deficit and the estimated cyclical component is defined as the structural deficit.

By definition, the faster is the projected rate of actual economic growth (given the assumed potential rate of growth), that is, the closer to the prespecified level of full employment the economy is projected to be, the smaller is the cyclical component of the deficit and the larger the structural component. Thus, given an estimate of the total deficit, if the economy is projected to be at full employment (however defined) in 1988, all of the estimated deficit would be labelled, by definition, as structural.

For this reason it has been said that economic growth cannot close the structural deficit. This statement is tautologically true but misleading because it is not fully informative. A more complete statement would note that the assumed potential rate of growth is rather arbitrary, and a higher potential rate of growth generally would be consistent with a smaller total deficit and therefore at full employment with a smaller or zero structural deficit.

Some commentators suggest that the long-run trend (or the trend over some particular time period) of the structural deficit should average out to be zero. But this prescription would appear to depend in part on the extent to which government spending is used for such purposes as: to pay interest on that part of the nominal increase in the Federal debt that, during a period of expected inflation compensates debt holders for loss in the real value of the principal; to make loans to the private sector; and to purchase items that are appropriately financed by borrowing -- for example, highways, buildings, research, development and education come to mind.

Chart 3 illustrates the ambiguity inherent in definitions of potential GNP (from which the notion of structural deficit is derived) as well as the dangers of treating the structural deficit as the main policy goal or even as an indicator of successful policy. For illustrative purposes, two alternative growth paths of potential real GNP are drawn. The first alternative corresponds to a potential GNP associated with the full employment unemployment rate of 5.1 percent, the second alternative to 7.0 percent. Hence, in 1982 the GNP gap, that is the difference between potential GNP and estimated actual GNP, is larger for the first definition of potential GNP than it is for the second. Under the first alternative it is assumed that a tax increase, prescribed to reduce the structural deficit, holds the rate of growth of potential GNP to 2.5 percent per year. Under the second alternative, in the absence of such a tax increase it is assumed that the growth rate of potential GNP is still a modest 3.7 percent. Actual output grows 4.1 percent per year under the first alternative and 4.4 percent under the second.

By 1988, under the first alternative (lower potential growth) the GNP gap is closed (actual growth has exceeded potential during the period) and, by definition, the cyclical component of the deficit is eliminated. Under the second alternative (higher potential growth) the GNP gap still equals 1.0 percent of GNP (actual growth has exceeded potential, but not enough to close the gap by 1988) and the cyclical component of the budget deficit is not eliminated. Furthermore, again by the very nature of the constraints employed, in 1988, the structural deficit is larger under the first alternative, associated with a lower rate of potential growth and a lower rate of full employment unemployment than under the second one, associated with a higher rate of potential growth and a higher rate of full employment unemployment. The latter outcome would appear to be preferable to the former one because it results in a faster actual growth and a higher actual level of output by the end of the period.

An inference can legitimately be drawn from this example that, insofar as tax increases have a recognized depressing effect on economic growth while the effects of deficits on growth are not necessarily depressing, at least not under all circumstances, it would be prudent, as a matter of policy, to be cautious -- even to err on the side of restraint -- in trying to eliminate structural deficits by raising taxes.

The effects of deficits on economic growth are difficult to identify, isolate, and measure. Indeed, as indicated above, there is some controversy about the proper way to measure the actual deficit. And certainly the structural deficit is a controversial and arbitrary concept which can be estimated only in a subjective and imprecise way.

But even leaving such difficulties aside, there remains the forbidding task of attempting to draw conclusions about the economic effects of structural deficits. These effects would depend on a great variety of factors, among which the level and composition of government spending and the structure of the tax system would play a particularly important role in determining the path of economic growth, while the course of monetary policy would play a crucial role in determining the level of prices, nominal interest rates and exchange rates.

A SHORT NOTE ON THE LONG RUN

The connection between government deficits and prices (including interest rates and exchange rates) in the long run is analytically very interesting, empirically intractable and extremely important from the standpoint of formulating appropriate policy responses. It is in the long run that rational economic agents will, by definition, have made the necessary adjustments to new economic circumstances.

In the present discussion, long-term changes in habits affecting the supply of labor, the supply of savings and the attitudes toward enterpreneurical risk are particularly important because these factors will have decisive influence on prices, real wages, interest and exchange rates. While it is beyond dispute that some tax regimes are bound to elicit a larger supply of labor and savings and be more encouraging toward entrepreneurship than others, magnitudes of these responses cannot be known in advance. The very notion of a different environment in the long run logically prevents using estimates of relevant parameters based on historical data, that is, those pertaining to an old environment. Therefore, one can only speculate on what might be the effect of continuing deficits (and therefore a growing Federal debt) on prices of financial assets and, more fundamentally, on economic growth.

In brief, for some combination of elasticities of supply of labor and private savings, marginal output-to-labor and output-to-capital ratios, a given structure of marginal taxes, and a composition of government expenditures (in terms of growth-enhancing and growth-retarding categories), there will be some sustainable level of secular budget deficits (and the implied Federal debt) relative to GNP. It is not possible to state a priori what that level might be but it need not necessarily be zero. The sustainable deficit-to-GNP ratio (and implied Federal debt-to-GNP ratio) would be higher the higher are

-- responsiveness of supply of labor and savings to net rates of return,

-- marginal output-to-labor and output-to-capital ratios,

-- average marginal taxes (at unchanged elasticities of supply of labor and capital),

-- the proportion of productive expenditures (investments) by the government in its total spending.

The question of what a tolerable deficit-to-GNP ratio (and the implied Federal debt-to-GNP ratio) might be cannot be answered without having some idea about the magnitudes of parameters specified above. Estimation of these parameters by means of traditional econometric methods does not produce satisfactory results. However, pertinent simulations (performed by IMF economists among others) which are based on a range of possible values of relevant parameters indicate that the supply effect of budget deficits attributable to tax rates cuts, while rather weak in the short run, dominates the demand effect in the long run for a variety of plausible combinations of parameters in question. What can be deduced, therefore, is that the secular trend of deficits, if kept at a sustainable level (that is, not resulting in an explosive growth of debt-to-GNP ratio) may be more conducive to economic growth than if the corresponding amount of funds were raised by taxing the productive factors in the economy.

Finally, even if one were to accept the proposition that a continuing high deficit-to-GNP ratio(and the implied Federal debt-to-GNP ratio) causes high interest rates, one could not conclude that these high interest rates will unavoidably result in slow economic growth. If tax cuts and tax reforms geared toward creating economic incentives, rather than increases in non-productive government spending, are the prime reason for deficits, high real interest rates may have no discernible effects on the rate of economic growth. In fact, evidence abounds that during periods of economic buoyancy and optimistic expectations, as, for instance, in the 1920s and 1960s, high investment levels and concomitant high growth rates may prevail for long stretches of time despite high (real) interest rates and, vice-versa, low (real) interest rates prevalent, for instance in the 1930s and 1970s, by no means guarantee high investment levels or robust growth.

Chart 1

REAL INTEREST RATES AND REAL DEFICITS

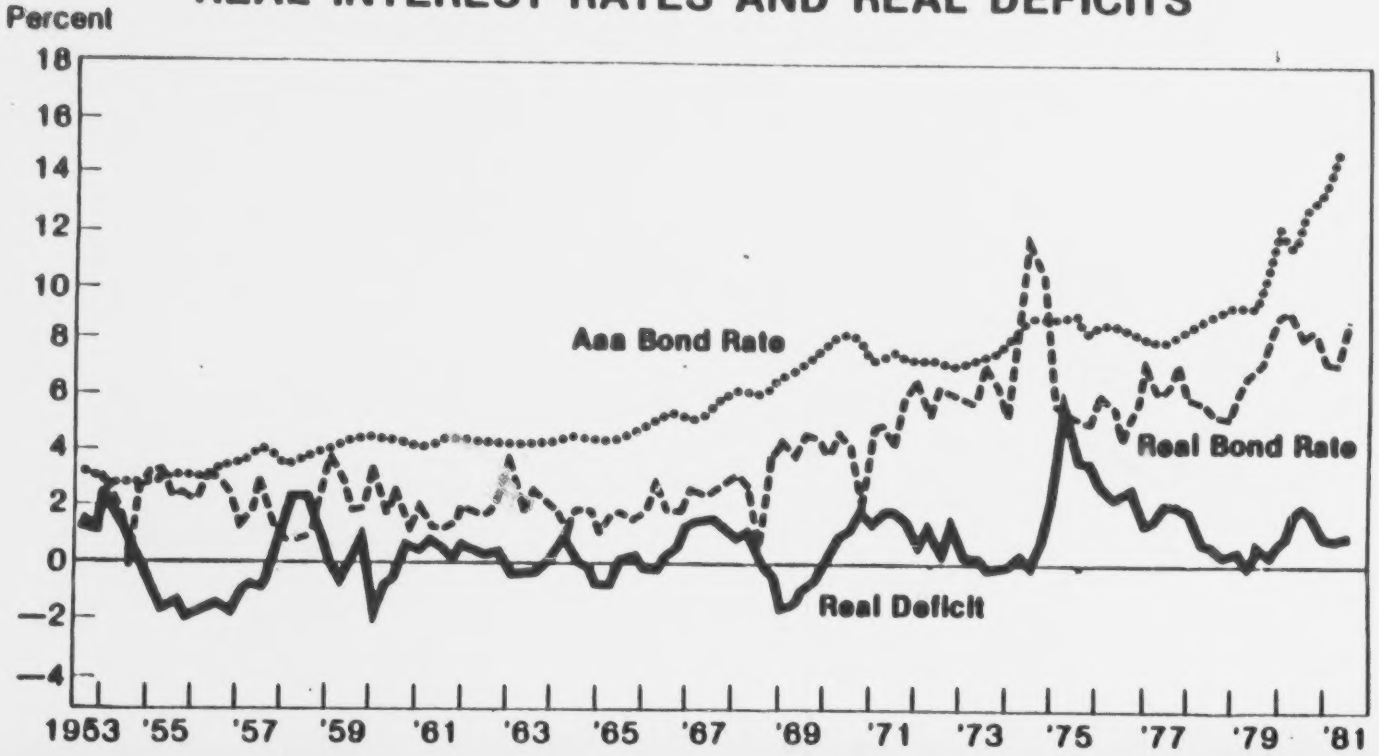
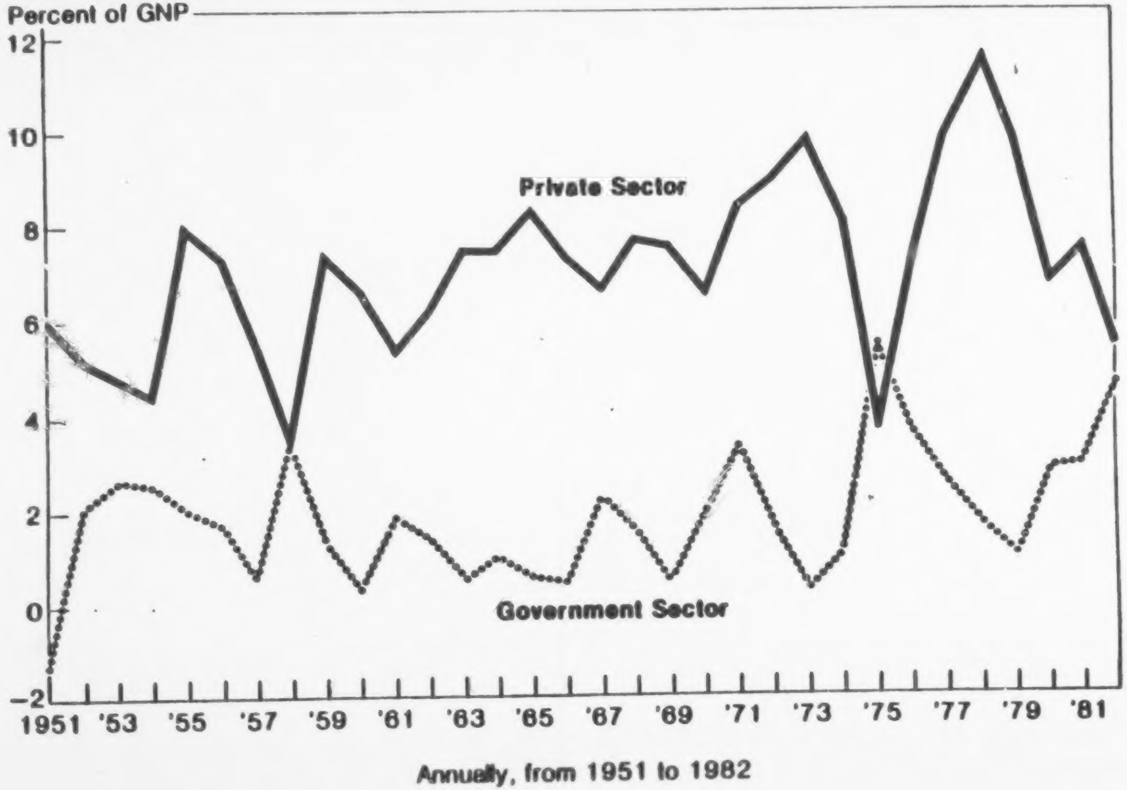
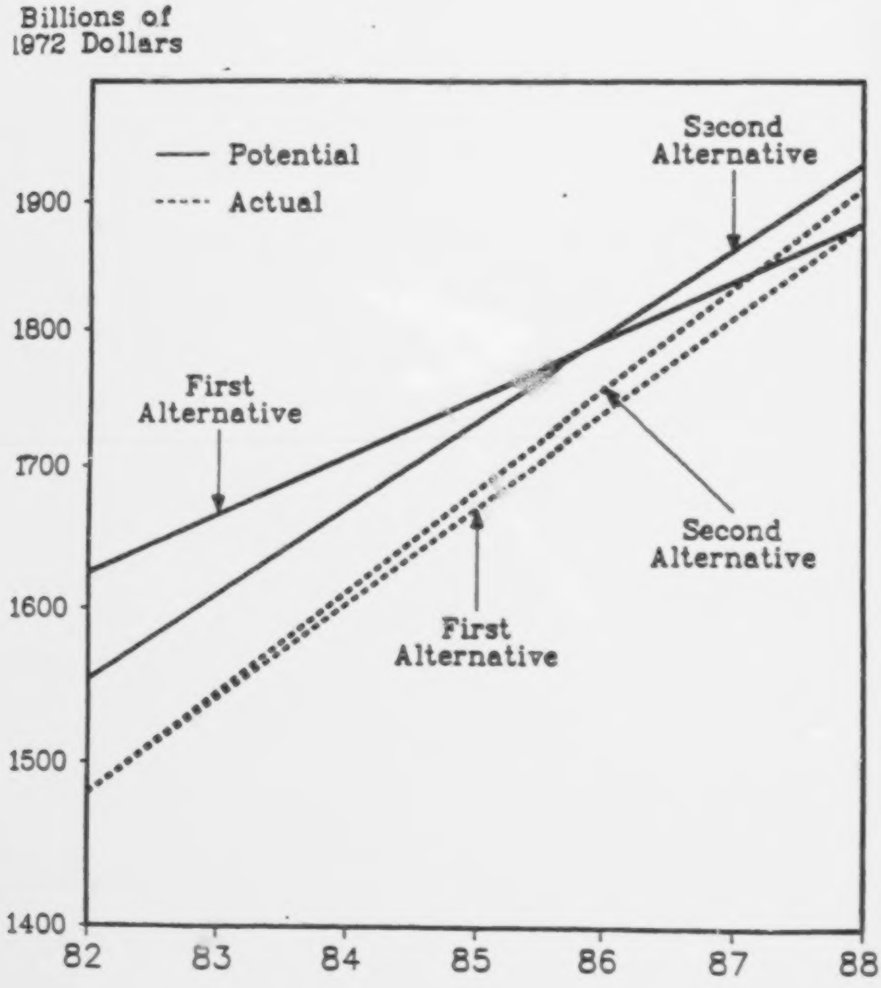


Chart 2

GOVERNMENT SECTOR AND PRIVATE SECTOR BORROWING



Alternative Paths of Real GNP



PART II

THE EFFECT OF FEDERAL DEFICITS ON INTEREST RATES:

A SURVEY OF THE LITERATURE

The Effect of Federal Deficits on Interest Rates: A Survey of the Literature

There is much current discussion about the potential disadvantages of the large projected deficits. These perceived risks include, among others, interest rate increases that cause short-run reduction in aggregate demand and longer-run reduction in the rate of capital accumulation and economic growth, Federal interest payments that grow to require ever more Federal borrowing to meet them, and the expectation that the increased pressure of an ever growing Federal debt would lead the Federal Reserve to monetize the deficit and thus re-ignite inflation.

The discussion of the potentially harmful interest rate effects lodged in the large deficits is motivated in part by a lack of consensus as to whether an increase in taxes would reduce the emerging risks. This disagreement reflects the fact that neither theoretical nor empirical analysis provides a clear-cut guide for decisions about either the urgency of reducing the deficits or the advisability of raising taxes to do so.

The purpose of these bibliographic notes is to indicate some principal sources in mainstream macroeconomic analysis of the issue. The notes are organized to present the most general findings first, and then to proceed with more specific and technical considerations. After mentioning some recently published surveys of the debate about the relationship between deficits and interest rates, the paper proceeds to consider measurement of the real deficit and public debt and the real interest rate. Next is a concise review of some econometric tests of the effect of Federal deficits and debt on interest rates. Finally, some major unsettled issues in the macroeconomic theory underlying the deficit/interest rate analysis are discussed briefly. The conclusion from the literature reviewed here is that the deficit/interest rate relationship remains an unsettled question.

Some Recent Surveys of the Debate

Several recent publications survey major issues in the discussion of the effect of deficits on interest rates. An accurate characterization of the state of the debate can be found in a paper by Rudolph Penner (1982) in which he reviews the literature on macroeconomic policy and domestic saving, and concludes that economic research on the issue is in a primitive state, precise answers are far beyond our grasp, but nevertheless the projected ratio of deficits to GNP is so high that it poses a risk to economic growth. Recognizing that there is no consensus on such issues as: the effect of changing levels of Federal deficits, the effect of changing after-tax rates of return on aggregate savings, whether monetary policy should be loosened, or whether growth in Federal spending on defense, retirement, and health can be cut; he recommends a tax increase which emphasizes base broadening measures (to avoid adverse supply-side consequences) and would have its major effect after 1985 (to avoid adverse short-run demand-side consequences).

Commenting on Penner's paper, James Tobin (1982) casts doubt on assertions of near-term adverse effects of the current and projected deficits and on the current benefits to be achieved by current actions to reduce future deficits. He notes that the main impact of the 1982 TEFRA tax increase was to reduce business saving and investments by repealing about half of the concessions to capital income enacted in the 1981 ERDA tax cut. Tobin expresses concern that future deficits during periods of prosperity will combine with high interest rates to raise the ratio of the Federal debt to GNP, but, he says that hysteria appears to be premature and overdone, and offers calculations that suggest that the debt-to-GNP ratio in the next 10 years would return to its level of the 1950s, about 50 percent. He revises downward that estimate to about 32 percent in a subsequent, more detailed analysis for the Conference Board (1983). Tobin notes, however, that if the defense build-up is not simply a bulge, [more] taxes will be required to pay for it. Tobin emphasizes that monetary policy is the key to recovery, that tightening fiscal policy would help provide a policy mix more favorable to capital formation, but that the effort would be wasted "unless the Fed engineers low enough real interest rates to absorb in investment the resources released by government, its taxpayers and its transferees -- plus a big fraction of the resources made idle by the recession." He says that macroeconomic policy is immobilized by an irrational fear that a temporary burst of money supply growth would be entirely dissipated in renewed inflation and have no real effects.

Four recent volumes which contain collections of current research bearing on the subject of the effects of deficits on interest rates are: The Boston Federal Reserve Bank 1983 conference volume, The Economics of Large Government Deficits (to be published in 1984), the Washington University (St. Louis) 1982 conference volume, The Economic Consequences of Government Deficits, the Conference Board report of the December 1982 conference, Toward a Restructuring of Federal Budgeting (1983), and The Deficit Puzzle, a special issue of the Economic Review, Federal Reserve Bank of Atlanta, August 1984. References to some of the papers in these volumes appear below.

As indicated above, empirical research on the deficit/interest rate relationship is inconclusive. In part, this is because it is difficult to construct suitable measures for the key concepts.

Measuring the Real Deficit and Debt

The relationship between the deficit and interest rates, investment, and growth, is analyzed best in real rather than nominal terms. Empirical studies of the effect of the real Federal deficit on the real interest rate require a correct measure of the real deficit (the nominal deficit less some portion of interest payments on the Federal debt). Measurement issues include the difference between the NIA and unified budget concepts, the advisability of relating the absolute size of the deficit to a measure of the size of the economy (such as GNP or population), and adjustments for cyclical effects. In addition, the appropriate valuation of the real market (rather than par value of the Federal debt and therefore of the real deficit, the annual flow that reflects the change in the stock of Federal debt) is crucial to the analysis and empirical estimate of the macroeconomic effects of the financing of government expenditures.

Phillip Cagan (1981) notes that it is customary to put the nominal deficit into real terms by deducting the product of the amount of publicly held Federal debt multiplied by the inflation rate (per the fixed weight GNP deflator). To the extent that interest payments on the debt include an inflation premium equal to the inflation adjustment (or depreciation) of the debt, and to the extent that debt holders regard these additional interest payments as a return of principal (rather than income to be consumed), the reinvestment of the additional interest will finance, without "crowding-out," an equal amount of deficit.

But, Cagan points out that the additional interest due to inflation (the inflation premium) may differ from the depreciation in the value of the debt. The difference arises when expected inflation is an inaccurate forecast of actual inflation. The inflation premium reflects the additional interest required to compensate for the inflation rate expected when the debt was issued, rather than the actual inflation rate that occurs when the depreciation in real value of the debt is calculated. If expected inflation has been less than actual, the additional interest (premium) will be less than the depreciation of the debt.

Thus, Cagan concludes that a proper measure of the deficit would not exclude the entire decline in the real value of the debt, rather only the extra interest viewed by lenders as repayment of principal (and thus available to finance new Federal deficit without absorbing new saving) should be excluded. In other words, the deduction from the interest cost of servicing the debt should equal the amount of the so-called Fisher effect (i.e., the inflation premium in nominal interest rates, reflecting inflation expected over the life of the debt instrument).

Cagan also notes that uncompensated declines in the real value of the debt result in capital losses to the private holders of the debt. These losses are a source of a further effect of inflation on debt financing, to the extent that the losers gradually attempt to save more to replace the loss to their financial capital stock. Cagan notes that estimates of this wealth effect range between 2-1/2 to 5 percent per year of the change in wealth; an uncompensated decline in the real value of the debt would add to the annual saving flow about 2-1/2 to 5 percent of the decline. He estimates that from the mid-1960s through FY 1982, the uncompensated decline was about $275 billion in 1981 dollars. Thus, according to these calculations, this effect adds about $7 billion to $14 billion per year to the flow of saving (and does not change much year-to-year because it reflects accumulated capital loss on the debt).

William Fellner (1984) estimates that during the period 19541982, total private net worth underwent a positive real revaluation (in excess of the PCE deflator) -- measured as the algebraic sum of overlapping three-year spans -- of about $3.5 trillion. Then, based on a regression estimate, he finds that consumption would rise -- or, equivalently, saving would fall -- by about 2 to 3 percent of the revaluation ($70 to $90 billion). Since he estimates personal saving was about $1.5 trillion over the period (personal income was about $22 trillion), the revaluation would result in a 5 to 6 percent reduction in personal saving.

In an attempt to focus on the revaluation of financial assets, Fellner notes that the revaluation estimate should be taken as a "package," and that only a shaky estimate can be made for a decomposition of the total revaluation. However, he estimates that the real revaluation of net fixed dollar positions and corporate equities is a negative $0.4 trillion and the positive effect on savings is about $20 billion. This estimate is rather modest in size. But Fellner's revaluation takes the PCE deflator as the basing point (revaluation does not begin until after the change in the PCE deflator is applied). And because the government debt is taken at par value his revaluation estimate includes no adjustment to government debt.

To the extent that interest rates change, the par value of debt is an inaccurate approximation to its market value. John Seater (1981) has constructed several series on the year-end market value of outstanding government debt. His series are exact measures of market value in that they are based on actual price quotes for each specific issue. The series include data on bonds, notes, certificates of indebtedness, and bills, for the period 1919 to 1975. He compares his results with existing data series constructed by other methods and shows that his are a considerable improvement.

W. Michael Cox and Eric Hirschhorn (1983) extended Seater's data by calculating the market value of outstanding Federal debt monthly from 1942-1980. They provide separate series for Treasury bills, bonds, certificates of indebtedness, notes, and total Treasury debt, along with estimates of privately held Treasury debt and gross Federal debt.

James Butkiewicz (1983) notes that the data series constructed by Seater and by Cox and Hirschhorn are costly to calculate. Therefore, he developed an alternative technique to estimate the market value of outstanding Federal debt. His approach is based on the assumption that all debt may be aggregated into a single issue of average maturity and average coupon interest rate. His method is less costly than direct calculation, with only a marginal reduction in accuracy.

Robert Eisner and Paul Pieper (1984), following the three studies just mentioned, and others by Horigan and Protopapadakis (1982), and the Economic Report (1982), revalue the Federal debt to adjust for the effect of inflation and for differences between par and market values. Of course, these valuations in the stock of debt imply revaluations in the annual flow of deficit -- revaluations from what would be observed as either the unified budget or the NIPA budget deficit estimate.

The Eisner and Pieper revaluations indicate that the real (constant dollar) market value of net Federal debt (net Federal debt equals gross debt minus financial assets) has fallen by half from 1946 to 1980, while budget deficits have occurred repeatedly. Eisner and Pieper also calculate the real market value for other liabilities of the government and its assets and conclude that Federal net worth has risen during the period.

They incorporate their inflation and par-to-market (i.e., interest-rate-related) gains and losses into the calculation of the high employment budget noting that without these adjustments the data would confuse nominal flows with changes in real stocks. Since the revaluations apply to the net debt, they are less than those for the gross debt.

In the opinion of Eisner and Pieper, a deficit that does not increase the net debt of the government does not increase the net income or the net wealth of the private sector and therefore does not have, per se, an expansionary effect on aggregate demand. They find that after their adjustments the recent official estimates of high employment deficits become surpluses. Thus, they conclude that fiscal policy on a full employment basis during the 1981-1982 recession was quite tight rather than quite loose, as suggested by the published official data (both unified and NIPA).

As will be indicated below, although some econometric estimates of the effect of the deficit on the interest rate refer to the real deficit, it appears that the change in the Federal debt is adjusted only for inflation and not for the change from par to market value. The use of market value would probably introduce simultaneous equation bias into a regression equation used to estimate the real interest rate as a function of the deficit. However, it would appear that this problem can be solved by deriving a reduced form equation from a system where the interest rate is a function of the deficit, and a second equation where the deficit is a function of the interest rate.

Research to improve the estimates of an appropriate valuation of the Federal debt and the deficit continues. A major area of open inquiry is the estimation of expected inflation. This subject is also closely related to the measurement of the real interest rate.

Measuring the Real Interest Rate

To estimate the relationship between the real deficit on real interest rates, it is necessary to have a data series for each variable. The real interest rate (r) is an unobservable concept defined as the difference between the nominal interest rate (i -- which is observable) and the expected rate of inflation (p^e -- which is unobservable) over the period of the loan. The basic reference on this topic is Fisher (1930), and further discussion is in Mundell (1963), Tobin (1965), Sargent (1973), Joint Economic Committee (1981), Santoni and Stone (1981), and Wood (1981).

Since expected inflation cannot be observed, it must be estimated in order to calculate the real interest rate. One way to do this is to assume that expectations about the future rate of inflation are formed on the basis of past inflation experience, such as observed (historical) inflation rates. This approach comprises a variety of hypotheses including the so-called extrapolative, the adaptive, and the distributed lag, which in some cases involves a form of learning or error correction in the formation of expectations. Turnovsky (1970) and Tanzi (1980), and the references cited there will acquaint readers with the large literature on this subject. Papers containing work using distributed lag models include Yohe and Karnosky (1969), and Feldstein and Chamberlain (1973), in addition to those noted below in the section on econometric tests of the effect of deficits on interest rates.

Another approach to modeling the formation of inflation expectations is to attempt to implement empirically the concept of rational expectations. The concept assumes that individuals use all of the information available, including information about economic policy variables such as money growth, and do not make systematic mistakes in their expectations. Thus, as regards inflation, most versions of this theory would imply that, apart from a pure random error which is serially uncorrelated, people's estimates of inflation are correct. Mishkin (1981) and Plosser (1983) are examples of studies that employ the rational expectations hypothesis. For more on rational expectations in general, see Muth (1961), Shiller (1978), and other references listed below in the section on rational expectations.

Some recent studies concerning the real interest rate, including Wilcox (1983), Peek (1982), Reza (1983) and others use Livingston survey data. These data are gathered in surveys of people's actual expectations about inflation. The data and their use are discussed in papers by Gibson (1972), Lahiri (1976), Mullineaux (1980) and Tanzi (1980).

Assuming a satisfactory measure of the expected inflation rate, some investigators have questioned the Fisher hypothesis that i responds by an amount equal to the change in p^e, that is, that the real rate is determined by real factors and is not affected by inflation. Thus, a growing number of studies consider the reasons why and the extent to which the real rate varies over time (aside from random fluctuations). Sources on this topic include, in addition to the papers mentioned earlier in this section, the basic study by Fama (1975), Carlson (1977), Nelson and Schwert (1977), and very recent studies by Peek (1982), Summers (1983), Makin (1983) and Wilcox (1983).

Some empirical estimates of the relationship between i and p^e indicate that although they move in the same direction, the change in i may be larger or smaller than the change in p^e. Given the Fisher hypothesis, such an outcome might arise from any one of several sources. The result can be interpreted as evidence of irrational behavior by investors, or of statistical instability of the coefficients estimated from an inadequate specification of the relationship between i and p^e, or that the data series on p^e measures factors other than the expected inflation rate. Several examples of such factors have been examined. One is the Mundell (Tobin/Sargent) real balances effect which implies that i responds by less than the change in p^e. Mundell's result occurs because inflation reduces the value of real money balances, and hence wealth, thus increasing saving and reducing the real interest rate. A second factor is the income tax effect, which would cause i to respond by more than the change in p^e, because a tax must be paid on the inflation induced increase in interest income. Supply shocks constitute a third factor.

Makin (1983) and Peek (1982) discuss, cite literature about, and offer empirical evidence confirming the Mundell effect. The Peek paper provides the same information regarding the tax effect. Makin says his analysis (which controls for the effects upon the expected real interest rate that result from money surprises, anticipated inflation, inflation uncertainty, and the impact of taxes) suggests that market interest rates reflect an efficient inflationary premium, and notes that this result is largely contrary to recent findings by Summers (1983). Also he doubts that an "uncertainty premium" elevates market interest rates. Over the full sample period he found the premium to be negative, reflecting negative pressure on market rates from depressed real investment that outweighs the possible positive impact from depressed real saving.

The latter conclusion may be compared with the Mascaro and Meltzer (1983) analyses that increased variability of unanticipated money growth raises demands for debt and money and reduces the demand for real capital. In contrast to Makin, they find that interest rates on both short- and long-term debt rise by a risk premium. They estimate that, on average, over the period 1980 to 1981, the risk premium was 3.3 percent in short-term and 1.3 percent in long-term rates, and that the size of the risk premium rose after the October 1979 change in Federal Reserve procedures.

Wilcox, in addition to recognizing the Mundell and tax effects, tests the hypothesis that supply shocks (e.g., an oil price increase) have an effect on the nominal interest rate over and above the effect of inflation expectations. He finds that real interest rates fell in the latter 1970s in response to a reduction in the supply of energy, because as input prices rose, the profitability of, and demand for, capital fell, and the decline of investment and the lowered growth rate of the capital stock dragged down the real rate of interest. His estimates suggest that by 1978 supply forces had pulled real pre-tax interest rates down 1.7 percentage points from their 1972 level. The shock probably reduces net real after-tax return to some existing capital, while new fuel efficient capital would have a higher return. However, the output contraction effect of the increase in the relative price of oil is a real loss in income and wealth which reduces the desired capital stock and thus depresses the demand for investment, and therefore tends to reduce real interest rates.

Thus, Wilcox's model would predict that expansionary fiscal policy, coupled with a reduction in the long-run money growth rate that depressed the expected inflation rate, would raise real after-tax interest rates (in the short run, lower money growth would raise real interest rates even further). Increases in the supply of energy would likewise tend to raise the real rate.

Wilcox's hypothesis refers to permanent real supply shocks that operate in the longer run. He notes that in the short run, with imperfectly flexible nominal wages, supply shocks (e.g., material price increase) raise output price -- i.e., the aggregate supply schedule shifts up and to the left -- and (other factors considered unchanged) this lowers real cash balances, increasing the demand for money, thereby temporarily raising real interest rates and lowering investment and output. But in the longer run, permanent real supply shocks reduce the return to and demand for capital (and labor), and thus drive down real and nominal interest rates (ceteris paribus). Wilcox recognizes that real rates may fluctuate with the business cycle -- e.g., an upward shift in the labor supply function (withdrawal of labor) caused by misperceptions would have the same effect as a supply shock (driving down the real rate of return to capital).

As noted above, the Fisher hypothesis is that the real interest rate is not affected by inflation, rather, it is ultimately determined by the real factors that are the source of the marginal productivity of real capital. Neoclassical macroeconomic growth and capital theory, and also microeconomic general equilibrium theory, analyze the relationship between the real interest rate and the marginal productivity of real capital. Good sources for macroeconomic growth theory are Solow (1956) and Burmeister and Dobell (1970). References for microeconomic theory are Malinvaud (1972) and Samuelson (1947).

Investigations into the validity of the Fisher hypothesis are motivated in part by the conviction that the level of the real interest rate rather than the nominal rate is directly related to the rate of investment. In general, holding constant the rate of innovation or technological change, a higher real interest rate is associated with less investment and lower capital intensity. Hence, other things being equal, to the extent that larger deficits raise real interest rates, they also depress investment.

Econometric Tests of the Effect of Deficits on Interest Rates

Econometric tests are a means of analyzing data in an attempt to shed light on the validity of a theoretical insight about economic events. These tests are an essential part of a scientific approach wherein questions are confronted with data, and they can be especially useful when theoretical analysis provides only ambiguous results. However, such tests cannot prove that a specified action causes a certain result. Rather, they provide quantitative estimates (statistically significant within certain confidence limits) of the extent to which variation in one variable is associated with variation in other variables. These probability-based estimates of the strength of such a relationship are the basis for a decision to accept or reject the theoretical insight about the way in which the world works.

A number of empirical studies bearing on the relationship between real deficits and real interest rates have appeared in the last dozen or so years, and the flavor of the debate is conveyed by summarizing a sample of this literature. Comparison of the results of these studies is difficult because of a number of differences including: the time periods examined; the theoretical assumptions; the statistical/econometric methods; the variables employed in the analysis; and the data used to measure the variables. However, a reasonable conclusion from these studies is that there is no consensus regarding the relationship between real interest rates and deficits.

In an article that recently has been subject to reconsideration, Feldstein and Eckstein (1970) attempt to isolate and estimate the economic forces that explain the long-term interest rate. Their analysis, which combines Keynesian liquidity preference/portfolio balance theory with Fisher's model of the role of anticipated inflation, identifies four types of variables -- liquidity, inflation expectations, privately held government debt, and short-run expectations about interest rate changes -- as important determinants of long-term interest rates (on seasoned corporate Aaa bonds with about 25 years to maturity).

They conclude that throughout the entire period from 1954:I to 1969:II the decline in the real per capita publicly held Federal debt (i.e., the relatively slow growth of the nominal debt) put downward pressure on interest rates; but that the Federal deficit (measured by the change in the public debt) is not significant in explaining interest rates. However, it is important to note that the Feldstein-Eckstein estimate of the relationship between the Federal debt and the real interest rate is weak in that it is of only marginal statistical significance and therefore is not robust enough to endure data revisions. They also estimate that nominal rates responded on approximately a one-for-one basis with expected inflation, and that the short-run interest expectation effect was relatively small.

More recently, Sinai and Rathjens (1983), in an approach similar to Feldstein-Eckstein, examined quarterly data for the period 1960:I to 1982:III and concluded that their attempt to link the per capita deficit -- measured by current changes in the publicly held Federal debt -- over their sample period was not successful.

However, they estimated that between November 1979 and October 1982, a $1 increase in the projected real per capita deficit (the average NIPA deficits for eight quarters into the future) was associated with a 0.67 basis point (6.7 percentage points per $1,000 of real per capita deficit) increase in the long-term corporate bond rate. (A $200 billion nominal deficit deflated by the GNP deflator is about $95 billion in 1972 dollars, about $410 per person, which in their estimate would increase the interest rate by about 2.7 percentage points.)

They note that this result does not apply to the earlier period of their data. Thus, their conclusion, that changes in future budget deficits have a significant impact now on long-term interest rates, is based on a single episode and therefore deserves equivocation. The fact that the deficit variable "works" only for the last 3 of the 22 years in the sample period indicates that the relationship is not strong enough to counter the "noise" during the period from 1960 to 1979. In contrast, the variable representing relative volatility of the bond and stock markets (the standard deviation of interest rates?) did "work" for the entire sample period, indicating that this volatility variable has a stronger relationship with the real interest rate than does the deficit.

The strength of the volatility relationship suggests a line of investigation worth pursuing. The risk factor, represented by the volatility variable, portrays heightened fluctuation (and uncertainty about it and reduced ability to predict it) which could be reflected in increased variance in the error term of the estimating equation. To the extent this characteristic, heteroskedasticity, is present, the statistical tests of significance are adulterated. Thus, it might be advisable to see whether the results are robust enough to survive an adjustment for this characteristic.

Also, the econometric estimates indicate enough serial correlation to warrant the reporting of their results after autocorrelation correction, but this was not done. And, their estimate indicates that nominal interest rates rise only enough to cover about half the expected future inflation, which in turn implies that (other factors considered unchanged) real interest rates decline in response to expected future inflation.

William Dewald (1983) presents data that suggest to him that real deficits, per se, have not been a critical factor in high real interest rates. Dewald's conclusion stems from an analysis that employs the deficit variable -- the real deficit relative to full employment output -- during the entire sample period.

Dewald's examination of the cycle average data for both long-term and short-term real interest rates and for real deficits relative to high employment GNP shows no strong association between real interest rates and real deficits. In the most recent cycle (1980:I through 1981:III) the long-term real interest rate averaged 4.5 percent, and the short-term rate average 4.7 percent, very high relative to earlier periods, but the relative real deficit was about the same as in the preceeding cycle. In prior cycles the long-term real interest rate hovered in the 2-3 percent range, while the short-term real rate was much more variable but remained rather low (ranging from -0.3 percent to 1.2 percent). The relative real deficit was about 1/3 of 1 percent through the 1960s, about 0.8 percent in the early 1970s, and about 1.4 percent from then on through the early 1980s (the largest relative real deficit in the sample period was in 1975:II). Thus, Dewald says this evidence tends to refute the conventional wisdom; the comparatively high real deficit during the period 1973:IV to 1980:I was not accompanied by comparatively high real interest rates.

Dewald's econometric estimates with cyclical-average data indicate a positive relationship for both the long-term and the short-term real rate with the real relative deficit, but the relationship was insignificant for the short rate and only marginally significant for the long rate. In addition, measuring real rates and the deficit based on actual inflation, he found the real deficit had no significant effect on either the long or the short rate. He notes that a percentage increase in the relative real deficit was estimated to have nearly the same 1 percentage point effect on both long- and short-term real rates, but warns that the results are not very robust with respect to small changes in the sample period and in the definitions of the variables, and that only a fraction of the variation in the real interest rates is explained, suggesting that the results are biased because of variables left out of the analysis. However, his results indicate that when the relative real deficit is about 1 - 1.5 percent, as in 1981-1982, it could account for only about 1 - 1.5 percentage points of the real interest rate, which was averaging about 4.5 percent.

Alan Blinder (1982) examines annual data for fiscal years 1952-1981. On the basis of this time series evidence (a' la Granger and Sims), he cannot reject, in either of his regressions, the hypothesis that growth in the publicly held government debt (measured by the unified on- and off-budget deficit) does not help predict real GNP growth. The estimated percentage change in real income in response to a 1 percent change in the debt is a small (between .06 percent and .13 percent) and statistically insignificant number. Therefore, he concludes that the growth in the national debt does not carry much information that is useful in predicting future real GNP growth. This result suggests that growth in the national debt does not carry much information that helps predict real interest rates.

The context of Blinder's study is the question of the extent to which monetization of the deficit matters. His conclusion that the deficit does not help predict real GNP growth is derived from an estimate in which the growth of bank reserves is held constant. He notes that his measure of the Federal deficit is nominal, in that it is not adjusted for the inflation related decrease in the real value of the outstanding debt, and that when he reestimated some of the regressions using the inflation-corrected deficit, the explanatory power of the equations deteriorated enormously.

Makin (1983) examines quarterly data on the 3-month Treasury bill rate from 1959-II to 1981-IV to detect an impact upon the real interest rate arising from an exogenous (i.e., as distinct from cyclically induced) rise in fiscal deficits. He says his results regarding the possible significance of "crowding-out" can only be judged as "mixed to weak"; and that over the entire sample period the positive relationship found was only marginally significant.

Several aspects of Makin's paper are interesting. He develops a macroeconomic model in the IS-LM format with some modifications and an aggregate supply function. He uses the model to show that tests of the possible impact of fiscal deficits on interest rates conducted by inserting a measure of the fiscal deficit directly into an interest rate equation result in estimates biased downward and possibly negative, because deficits are endogenous and typically countercyclical, while interest rates are typically procyclical.

Thus, correct procedure tests the impact on interest rates of the exogenous (i.e., policy induced) portion of the deficit. Makin notes that since the measured impact on interest rates of an exogenous shift in any spending component, such as exports, should be identical to that of an exogenous shift in government expenditure, shifts in exports can measure the potential crowding-out impact of exogenous shocks to aggregate demand.

Using a direct measure of the deficit, he estimates that a $100 billion deficit would elevate short-term interest rates by only about 10 basis points, an estimate he regards as biased downwards. Reestimation using exports as an exogenous addition to demand indicated that a $100 billion exogenous rise in the deficit could elevate short-term interest rates by about 110 basis points (an estimate that is relatively close to the 70 basis points he reported in an earlier study). However, he notes that the statistical significance of this result is weak; it just barely avoids the judgment that these data reveal no relationship between the interest rate and the deficit.

Ali Reza (1983) examines quarterly data on the average market yield of 1-year Treasury bills during the period December 1959 through December 1982. He takes the Feldstein-Eckstein (1970) study as his point of departure, introduces some changes in the model and measurement of the variables, and comes to rather opposite conclusions.

His results suggest that the Federal deficit does not cause changes in either the real rate of interest or real output, and clearly does not increase either of them. Reza's analysis differs from Feldstein-Eckstein in that Reza bases his estimates on a more general model -- he uses an IS-LM model with an aggregate supply function; he adjusts the interest rate for the effects of the marginal tax rate to obtain an after-tax rate of return; and he uses the Livingston series as a measure of anticipated inflation rather than a distributed lag of past inflation.

Although Reza's results are not conclusive, they are an interesting counterpoint to the Feldstein-Eckstein and the Sinai-Rathjens studies. Reza says the implication of his results is that the private sector fully discounts future tax implications of government deficits -- rational behavior in view of the recent experience when the 1981 tax cut was followed by the 1982 tax increase in response to the large deficits experienced in 1981 and forecast for subsequent years. Reza finds that exogenous government spending is the culprit in keeping interest rates high.

Charles Plosser (1982) tests the hypothesis that a substitution of debt for tax financing crowds-out private investment by driving up the required rate of return -- i.e., driving down the value of existing assets with fixed cash returns (e.g., bonds). He finds that there is little evidence that the way in which government expenditures are financed (taxes versus debt) is systematically related to movements in rates of return; unanticipated changes in government financing decisions appear to have no impact on asset values. In contrast, he finds consistent evidence that increases in government purchases are associated with higher interest rates.

Plosser's analytical approach and basic assumptions are controversial. His investigation assumes capital markets are efficient (that is, expectations are rational) and examines asset price response to a shift from debt financing to tax financing of a given level of government expenditures. Thus, his empirical analysis of fiscal policy is from a different perspective than the more traditional studies which attempt to estimate structural models of the financial sector or aggregate consumption and saving behavior in response to fiscal policy shifts.

The relationship he estimated is most significant for bonds with less than a year to maturity, a result he says suggests that such fiscal policy innovations have only a temporary impact. He notes that these findings may be interpreted as evidence of potentially interesting intertemporal substitutions induced by government spending. This interpretation, from the so-called rational expectations viewpoint, is that fiscal policy changes cannot effect permanent changes in macroeconomic behavior.

William Fellner (1984) focuses on the fact that empirical estimates of the investment-reducing effect of deficits are overstated if they fail to account for a rise in savings that occurs in response to downward revaluations of the public's real net worth -- revaluations that in fact have accompanied deficits. He examines data for the period 1954-1982, under the assumption of a given level of aggregate nominal income -- that is, given a monetary policy that offsets any additional expansionary or restraining effect of fiscal policy. From these data he estimates that the factors which moderate the investment-reducing effect of budget deficits are more than negligible but are probably insufficient to neutralize the extent to which Federal deficits shift savings away from private investment. Thus, he views the size of the projected future structural deficits to be troublesome, and suggests that deficit reduction measures should be directed at tilting the consumption-investment mix back toward investment, and that if additional taxes are needed they should be broadly based consumption taxes. This policy judgment is based on estimates that are admittedly crude, but are interesting nevertheless.

On the basis of cycle-average data, he observes that compared to earlier years, the peak-to-peak period 1973-1979 has a significantly lower savings ratio while real public indebtedness was rising rapidly. While recognizing that, because of inadequate controls this comparison is not conclusive, he notes that the observation is contrary to the prediction of the Ricardo/Barro theorem of the equivalence of tax and deficit finance.

The foregoing sampling of recent econometric tests of the effect of real Federal deficits on real interest rates indicates that empirical studies of the issue are inconclusive. It is not surprising that it is difficult to isolate and measure a strong, clear-cut effect. As indicated above, even the task of measuring the essential concepts is as yet incomplete. Furthermore, there remains considerable controversy about fundamental questions that must be addressed in modelling the complex economic relationships. Much of the theoretical and empirical research on the relationship between the Federal deficit and the interest rate is based on one or another variant of a Keynesian macroeconomic model. The Keynesian framework has been expanded, tested, and criticized over the past half century. To the extent that this model is unable to explain reality, it is questionable as a basis for establishing valid conclusions about the deficit/interest rate issue. To indicate the many issues about which serious scientific research continues to seek answers, the following pages are devoted to some of the more important parts of the ongoing debate about so-called mainstream macroeconomic relationships.

Theoretical Results from Basic Keynesian Analysis

The basic Keynesian approach gives the result (except for the special case of the liquidity trap) that an increase in the deficit brought about either by an increase in government spending or a reduction in taxes has the effect of raising interest rates. Both the model and its result are subject to numerous and varied qualifications. An introduction to this voluminous literature can be found in a macroeconomics textbook such as Dornbusch and Fischer (1981) or Gordon (1982). Other general treatments can be found in Allen (1968), Evans (1969), and Lerner (1951).

One of the basic analytical tools of Keynesian-type analysis is the IS-LM apparatus, which consists of equations showing equilibrium conditions in the money market and the product market. The IS-LM equations are often used in theoretical and empirical analyses of the effects of deficits on interest rates and other variables. A primary source for the IS-LM apparatus is Hicks (1937).

The Keynesian Investment and Consumption Functions

The Keynesian investment and consumption (savings) functions underlie the IS relation. Milton Friedman and David Meiselman (1963) produced evidence that cast doubt on the importance of investment as a determinant of cyclical behavior and on the stability of the Keynesian multiplier. Two major analyses of the consumption function are Ando and Modigliani (1963) and Milton Friedman (1957). Franco Modigliani and Richard Brumberg (1954) developed the life cycle hypothesis of individual saving behavior, which implies that the lifetime path of consumption is smoother than the lifetime path of disposable income. Further examinations of, and some disputes about, this theory appear in Modigliani (1966), Robert Hall (1978), and Sheldon Danziger, et al,)1980). A good source of numerous contributions (pro and con) to the debate about the Keynesian-type investment consumption and saving functions (including, for example, the controversy about the extent to which saving responds to interest rate changes) can be found in various issues of the Brookings Papers on Economics (1972 to the present).

Effect of Wealth in Deficit/Interest Rate Analysis

Explicit consideration of the effects of changes in the stock of wealth has proven to be significant for macroeconomic analysis. Models which fail to consider the roles of stocks of various types of wealth are suspected of being a biased basis for addressing the deficit/interest rate issue. Simple Keynesian models contain at most only an unsophisticated treatment of wealth. In such models changes in taxes affect disposable income, but the resulting changes in government debt implied by the change in the deficit are largely ignored.

In the ongoing development of the Keynesian framework, the effects of wealth on macroeconomic variables such as consumption, and the demand for money, have been given increasing attention with explicit consideration given to wealth in the form of government bonds, privately issued bonds, real physical capital, and the money supply. Important sources for the treatment of wealth in Keynesian style models include Leijonhufvud (1968), Metzler (1951), Patinkin (1965), and Tobin (1961 and 1969).

The standard IS-LM analysis is that substitution of deficit for tax financing (of a given level of government expenditures) increases aggregate demand. Examples of this approach are

Modigliani (1961) and Blinder and Solow (1973). In this analysis it is assumed that the government bonds issued to the public to finance the deficit increase private wealth, and because increases in wealth increase current consumption, aggregate demand is given a further boost. However, because of this boost to current consumption, the increase in private saving is less than the bond issue and, therefore, real interest rates rise and crowdout some private investment. As a result, the rate of capital accumulation falls and future generations have a smaller capital stock. Researchers have found several bases for casting doubt on this analysis and conclude that deficit increases result in a rise in real interest rates and crowd-out private investment.

Barro (1974) argues that the standard analysis is incorrect because it does not recognize that future taxes required to service and retire the debt imply that there is no net wealth effect associated with the issue of government debt. This implies that there is no difference between financing government spending by taxes or by debt. Empirical studies attempting to settle the theoretical dispute remain controversial.

Some of these studies work within the IS-LM structure. These include Buiter and Tobin (1979) and Feldstein (1982), who conclude that the public considers the government bonds they hold to be wealth, but the findings of Kochin (1974), Kormendi (1978), and Tanner (1979) find that the data suggest that government bonds are not wealth (do not influence aggregate consumption). As indicated earlier, Plosser (1982) considers the issue from a different perspective and investigates the response of asset prices in an efficient capital market. He estimates the extent to which a substitution of debt financing for tax financing is associated with an increase in interest rates. He concludes that the evidence suggests that asset prices are unrelated to how the government finances its expenditures, and thus that government bonds are not wealth.

Demand for Money in Keynesian Models

The behavior of the demand for money, especially as a function of interest rates, is the heart of the LM relation and thus is critical in the Keynesian analysis of the effects of an increased deficit on interest rates. The primary means by which an increase in the deficit raises interest rates in the basic Keynesian model is by increasing nominal demand, and thereby increasing the demand for money to support the higher volume of nominal transactions. Given an unchanged supply of money, if the demand for money is very insensitive to variations in interest rates, that is, if a bigger increase in interest rates is needed to bring money demand down a given amount, the degree to which interest rates rise in the Keynesian model for a given increase in the deficit will be larger.

There is theoretical disagreement as to whether the interest rate affects the demand for money. Econometric tests generally show there is an effect, but the magnitude remains a matter of controversy and studies continue.

A substantial volume of literature has been written about theoretical and empirical aspects of the demand for money. Three articles containing theoretical material are Baumol (1952) and Tobin (1956 and 1958). Empirical literature on the demand for money is also extensive. Three references are M. Friedman (1959), Goldfeld (1973), and B. Friedman (1978).

Quantity Theory Criticism of Keynesian Models

Milton Friedman and other "monetarists" question Keynesian theory on monetary grounds. Friedman (1956) presents the elements of this theoretical approach.

In a number of NBER studies during the nineteen-sixties, Friedman and Anna J. Schwartz investigated the relationship between money and cyclical behavior. They found that the changes in money income and prices that marked every major episode (deep depressions or major inflation) in U.S. economic history were "accompanied by a change in the rate of growth of the money stock, in the same direction and of appreciable magnitude." Inasmuch as this "cannot consistently be explained by the contemporary changes in money income and prices," either it must stem from coincidence or "it must reflect an influence running from money to business." (Friedman and Schwartz, 1956).

A symposium on Friedman's theoretical framework was published in the Journal of Political Economy (1972). This symposium included contributions by Brunner and Meltzer, Tobin, Patinkin, and a reply to his critics by Friedman.

Brunner and Meltzer (1972) also develop an alternative to the standard IS-LM framework. Their model includes two asset markets (rather than just a money market) and the prices of real assets, financial assets, and output. Thus they can analyze the substitutions between money, bonds, real capital, and current consumption that occur as adjustments to changes in monetary or fiscal policies or by autonomous changes in the productivity of capital. They can analyze also the interrelation of asset prices, output prices, and interest rates.

In addition, they develop an analysis of the credit market and its interaction with the rest of the economy and use it as a price theory explanation of persistent or "involuntary" unemployment. In their model the credit market is the main link between the government and the private sector, and they explicitly consider the effects on assets and output of financing the government's budget. In contrast to the Keynesian paradigm, the relative responses to monetary and fiscal policy in their model do not depend on the interest elasticities of the IS or the LM functions. Nor is the real balance effect crucial for a positive response of output to changes in money or the monetary base; the dominant wealth effect induced by monetary (and some fiscal) policies is a change in the price of output (the price level). A constant, maintained budget deficit financed by issuing debt raises market interest rates and the price of real capital.

Loanable Funds (Flow-of-Funds) Analysis

Frequently the effects of deficits are analyzed in terms of loanable funds, especially when the analysis is concerned with very short-term impacts of deficits on financial markets. The issuance of bonds by the government for the purpose of financing an increase in the deficit is said to increase the demand for loanable funds, and if the supply of loanable funds does not increase by the same amount, interest rates will rise. Whether or not the supply of loanable funds will increase by the same amount as the demand, depends on the extent to which the future liabilities implied by the new bonds are taken into account and whether the bonds are regarded as wealth. If the future liabilities completely offset the current wealth in the bonds, in most computations (aside from incentive effects) saving and the supply of loanable funds should rise by the same amount as the demand, and interest rates should not have to change to bring supply and demand into balance. This subject is discussed in Tsiang (1956) and in the references to the Ricardo/Barro "equivalence theorem."

Crowding-Out

Benjamin Friedman (1978) analyzes the financial market aspects of the question whether Federal Government deficits crowd-out private investment spending. His model assumes that: monetary policy does not accommodate the increase in the deficit; the economy is operating at less than full capacity (at full employment, additional debt financed government spending induces inflation and thus displaces some private spending); and that higher utilization rates induced by government spending do not have an "accelerator effect" which would result in an increase in the desired capital stock. Friedman examines two financial market phenomena: transactions crowding-out and portfolio crowding-out.

To the extent that an increase in the fiscal deficit stimulates aggregate demand, it increases the demand for money to finance the larger volume of transactions, which raises interest rates, thus discouraging some private spending. This result is moderated to the extent that the demand for money decreases (the velocity of money increases) in response to the rise in the interest rate -- so interest rates rise less -- and the extent to which the demand for investment goods is insensitive to the rise in interest rates. Friedman's statistical estimates indicate that, in the short run, transactions crowding-out is minor, and although it increases in the longer run it discourages less than half of the potential fiscal impact of the deficit.

Portfolio adjustments can occur as a result of an increase in the deficit financed by government bonds sold to the public. Friedman's analysis, building on the work of Tobin, examines a model with 3 assets: money, government bonds and private capital ownership. This model is sufficiently general to yield ambiguous results of the portfolio adjustment effect of a deficit increase on private investment.

The public may respond to the increased volume of bonds in their portfolios by seeking to increase its desired holdings of cash or real capital. Increased demand for real capital tends to reduce the required return on investment, thus promoting real capital accumulation. In contrast, increased demand for more cash holdings tends to raise interest rates on government debt, making investment in real capital less attractive. The outcome depends on whether money or private capital ownership is the closer substitute for government debt. Portfolio crowding-out of private capital formation necessarily follows if investors view government securities and capital as perfect substitutes. Some Keynesian models, such as Blinder and Solow (1973), assume this is the case, but this assumption is shown to be neither theoretically nor empirically valid. On the other hand, portfolio crowding-in of private capital formation necessarily follows if an increase in wealth does not increase the demand for cash. But Friedman presents empirical evidence that wealth does influence money demand. Friedman emphasizes that there are no conclusive findings as to whether actual behavior results in portfolio crowding-out or portfolio crowding-in.

However, Friedman suggests that short- and long-term government securities may have different relative substitutibilities with cash and capital -- short-term Treasury bills are perhaps more like money, while very long-term Treasury bonds are more likely to provide investors with substitutes for long lived capital goods. To the extent this is the case, debt management practices that finance a deficit with very short-term rather than long-term securities would be less likely to crowd-out private capital investment.

Other references on the subject of portfolio crowding-out are Roley (1979, 1981, and 1982). These papers also provide useful references to empirical and theoretical research in this area.

Implications of Growth in the Federal Debt

Prolonged large Federal deficits create the risk that the Federal debt will account for a large and growing share of the total credit market indebtedness of U.S. nonfinancial borrowers. Benjamin Friedman (1983) notes that the economy's total debt-to-GNP ratio has remained relatively constant (displaying no trend and little cyclical fluctuation) since the end of World War II. However, despite the relative stability of the total, the components -- the private sector debt-to-GNP ratio and the Federal debt-to-GNP ratio -- fluctuate. Neither component shows a stable relationship to GNP, but their movements have been offsetting, so the total has remained a rather constant 1.45 percent of GNP.

Friedman traces the Federal debt-to-GNP ratio, noting a decline from 103 percent in 1946, to 63 percent in 1953, to the 24-29 percent range in the 1970s through 1982 -- which he compares to the 27 percent rate in 1918. However, he points out that the declining trend stopped in the mid 1970s, has turned up in FY 1983, and is projected to rise further through FY 1988. The rising Federal debt-to-GNP ratio reflects a path of deficits that is relatively large compared to nominal GNP growth resulting from either real output growth or inflation. Given the rather constant total debt-to-GNP ratio, the rise in the Federal debt ratio implies a falling private debt-to-GNP ratio.

He puts the projected decline in the private debt ratio in the perspective of the 1956-1980 period during which the noncorporate business sector (which accounts for about three-quarters of U.S. plant and equipment investment) used borrowing to fund about 64 percent of its net financial requirements. Thus, Friedman concludes that in the absence of a major change in financing patterns, the build-up of the Federal debt-to-GNP ratio implies less debt available to finance the private capital accumulation necessary to increase the nation's capital intensity (the capital stock-to-total output ratio). By focusing on the debt-to-GNP ratio Friedman adjusts for actual inflation rather than properly accounting for expected inflation, and it is not clear whether he makes a par to market value adjustment, but nevertheless his main conclusions deserve consideration.

Frank de Leeuw and Thomas Holloway (1983) also explore the buildup of Federal debt resulting from sustained deficits. Based on the level of real GNP at its mid-expansion point in the cycle, they estimate a "mid-expansion trend GNP path," which removes cyclical fluctuations, but preserves the average level of real GNP growth over the period 1953-80. Based on this trend real GNP path, they estimate a time series of the cyclically adjusted Federal deficit and the cyclically adjusted Federal debt.

To analyze the long-run "crowding-out" of private investment, de Leeuw and Holloway prefer to represent the role of the Federal budget by an estimate of the market value of the stock of publicly held Federal debt rather than the current deficit flow. This analytical preference stems from the fact that the stock of government securities, not the current deficit, is a substitute for capital stock in the public's asset portfolio (as noted above in Friedman's analysis of crowding-out). The choice is important because the Federal deficit-to-GNP ratio need not move in the same direction as the Federal debt-to-GNP ratio.

Rather than use actual data, they use cyclically adjusted data because the growth of the trend (cyclically adjusted) debt relative to trend GNP is important for the analysis of the impact of the budget on productivity and growth. And, focusing on changes in the cyclically adjusted debt-to-trend GNP ratio is similar to analyzing the effect of the real (rather than the nominal) deficit by including real (rather than nominal) interest payments to account for changes in the real value of outstanding Federal debt.

Of course, the cyclically adjusted Federal debt is the cumulation of annual cyclically adjusted Federal deficits. So it is important to note that the de Leeuw and Holloway estimate of the cyclically adjusted Federal deficit tends to be higher than alternative measures such as the BEA's published high employment budget (measured at a 4.9 percent unemployment rate) or even a high employment budget based on a 6 percent unemployment rate. For example, for 1983, when the actual deficit was 5.6 percent of actual GNP, the de Leeuw and Holloway cyclically adjusted deficit was 4 percent of "mid-expansion trend" GNP, whereas the BEA high employment deficit was 1.5 percent of high employment GNP, and the high employment budget at 6 percent unemployment was 2.5 percent of the corresponding high employment GNP.

The de Leeuw and Holloway estimates indicate that increases in the cyclically adjusted Federal debt-to-trend GNP ratio during 1981-83 were due, about equally, to the differential between the interest rate on Federal debt and the GNP growth rate, and to explicit policy decisions about Federal receipts and expenditures. The major policy decisions were cuts in personal and corporate taxes, and increases in defense spending. de Leeuw and Holloway project that, under a wide range of assumptions about interest rates, GNP growth rates, and budget decisions, the cyclically adjusted Federal debt-to-trend GNP ratio will increase during the period 1983 to 1988.

Potential Instability

Sargent and Wallace (1981) have pointed out that persistent deficits cause an increase in the Federal debt-to-GNP ratio that can be unstable. If Federal expenditures other than interest payments on the Federal debt are a larger share of GNP than are Federal tax receipts (that is, there is a so-called "primary deficit"), and if the interest rate on the Federal debt exceeds the growth rate of GNP, interest payments on the Federal debt become a progressively larger share of GNP. The Federal debt-to-GNP ratio rises because of the need to finance the persistent primary deficit and the ever growing interest bill. Sargent and Wallace suggest that as this process continues, so does the pressure to monetize the debt. Monetization would bring inflation, which would reduce the real value of the debt and thereby reduce the real value of interest payments on the debt. But inflation could accelerate unless expenditure reductions and/or tax increases reduced the primary deficit and allowed the monetization process to stop.

James Tobin (Conference Board, 1983) analyzes the dynamics of Federal deficits and debt using a model similar to the one examined by Sargent and Wallace. He focuses attention on an equation that describes the growth of the Federal debt-to-GNP ratio. This equation shows the crucial relationship between the real interest rate on Federal debt and the growth rate of real GNP. The assumption of reasonable values for the parameters in the equation permits the calculation of a "steady state" or "stationary" value of the debt-to-GNP ratio, the level at which the ratio would stop rising, as long as the growth rate of real GNP exceeds the real interest rate.

Tobin also uses the model to estimate the path of the Federal debt-to-GNP ratio for various periods from 1952 to the present. For example, for the 1980-81 period, he calculates the actual debt-to-GNP ratio to be 26.5 percent. Using parameter values from that period he estimates that after 5 years the ratio would rise to 29.1 percent and to 31.6 percent after 10 years, and that the hypothetical "stationary" level of the ratio is 80 percent. While rather imprecise, these estimates are commensurate with those of de Leeuw and Holloway mentioned above.

Tobin also suggests that, rather than allowing the debt-to-GNP ratio to rise to the maximum level implied by the situation in 1980-81, policy steps could be taken to stabilize the ratio at about 30 percent. He says this would require reducing the primary deficit to 0.6 percent of GNP. But, he says, the key is to reduce the real (after tax) interest rate to 1 percent, by a one time monetary injection, which would raise the Fed's monetization of the debt and future deficits to about 17 percent (a level much closer to historical practice than is current policy).

Monetization of the Deficit

Macroeconomic analysis generally concludes that important consequences depend upon the extent to which the Federal debt is monetized. The search continues for conclusive evidence on several related questions. One is the extent to which monetization affects real versus nominal GNP. Another question is what factors determine the extent to which the Fed will monetize the deficit.

As Alan Blinder (1983) puts it, the first question amounts to asking, "do open market operations matter?" That is, for a given budget deficit, will real or nominal GNP behave differently depending on whether the new bonds are bought by the Fed or the public? Blinder presents the traditional analysis and then reviews some recent theoretical literature which indicates that the answer is ambiguous when the dynamics of wealth effects, supply-side effects, and expectational effects are considered. To resolve the ambiguity, he presents time series evidence (see page 12 above) which supports the idea that monetization matters mainly as a predictor of future growth in nominal, but not real, GNP. In addition, Blinder finds only mixed evidence that a monetary base variable helps predict inflation, once growth in government debt is accounted for.

Since the extent of monetization is considered to be an essential consideration in estimating the extent to which deficits might be connected to the process of inflation, Blinder also reviews recent studies of the extent to which deficits are associated with increased money growth. He finds the evidence mixed -- no firm conclusions about the determinants of monetization. His own estimates, based on data for the period 1961-1981, indicate that about 6-1/2 percent of a nominal deficit would be monetized, after accounting for the effects of inflation and the annual growth of government purchases, both of which tend to decrease the fraction of the nominal deficit that is monetized. These estimates are similar to those reported by Mickey Levy (1981). However, when Blinder based his estimates on the inflation adjusted deficit, that variable showed no relationship with money growth. Both the Blinder and the Levy papers provide succinct reviews of and further references to the literature on this topic.

As was mentioned in the section above on "potential instability," the buildup of the Federal debt-to-GNP ratio increases the pressure to monetize the debt. Indeed, Sargent and Wallace (1981) show that under some circumstances, a relatively large Federal debt severely constrains the ability of monetary policy to control inflation. Tight money now will result in future inflation higher than it would be with looser monetary policy now, because tighter money means greater reliance on bond finance. This in turn means that the debt will be larger at some specified date in the future when monetization will, by assumption, begin. The larger the debt, the more monetization will be required, and the greater the inflation that will result. To the extent that this chain of events is anticipated and results in an increase in the monetary base, tighter money now could result in more inflation now. In addition, Preston Miller (1983) argues that even if the Federal Reserve does not formally monetize the debt, higher interest rates make it profitable to hold interest bearing assets that are as risk-free as money and that can be used essentially as money in transactions. Thus the private sector introduces and trades in such instruments and effectively monetizes the debt.

Effect of Wage-Price Behavior in Deficit/Interest Rate Analysis

The analysis and prediction of wage-price behavior continues to be an area of great controversy. Assumptions about such behavior can be crucial to conclusions about the deficit/interest rate issue. It tends to be true, for example, that neoclassical models assume that wages and prices are much more flexible in the short run than Keynesian models. Consequently, neoclassical macroeconomic models are much more similar to microeconomic general equilibrium models, and they tend to allow more room for incentive effects to operate. As a result, in such models the effects of an increase in the deficit brought about by a tax cut are more supply-side oriented, and the demand-side effects which may raise interest rates are less pronounced. For more on these complicated issues see Barro and Grossman (1971), Clower (1965), and Leijonhufvud (1968). An early article on wages in the Keynesian system is Keynes (1939). An important and controversial strand of the Keynesian tradition is the Phillips curve, which postulates that less unemployment leads to faster wage increases. The basic article for this approach is Phillips (1958). Other very fruitful sources are E. Phelps (1970 and 1972), R. Gordon (1983), M. Baily (1983) and J. Taylor (1983).

Relative Price Effects of Taxes in Deficit/Interest Rate Analysis

The effects of taxes on prices and hence resource allocation also can be crucial to conclusions about the deficit/interest rate issue. As pointed out by a number of authors, the subject is treated inadequately at best in Keynesian-type analyses. Dale W. Jorgenson (1962) presented data to show that "the central feature of the neoclassical theory is the response of the demand for capital to changes in relative factor prices." In later work with Robert E. Hall, Jorgenson presented empirical evidence that investment was responsive to tax treatment (Jorgenson and Hall, 1967). Arnold Harberger, (1962, 1964, and 1974) utilizing concepts originating with Marshall and Walras, analyzed the way in which differential taxes contribute to inefficiency, and estimated the loss of efficiency associated with the corporate income tax.

Rational Expectations

As was indicated earlier, an important qualification to the standard Keynesian model that serves as a basis for much of the discussion of the deficit/interest rate issue is the growing literature on rational expectations. In a series of articles, Robert E. Lucas and Edmund S. Phelps developed a formal theory of aggregate supply based on the methods used by economic agents to distinguish relative from absolute price changes. This theory allows for information lags and adjusted costs (see for example Phelps, 1970, and Lucas, 1973).

Thomas Sargent and Neil Wallace (1975) have offered an alternative formulation in which aggregate output varies with the difference between the actual current general price level and the general price level that people expected, in the last production period, to prevail during this production period.

More recent contributions, for example Binder (1981), indicate that even anticipated money-supply changes can exert real output effects when the rational expectations paradigm is extended to the behavior of inventories.

The empirical studies of Friedman and Schwartz did not decompose the effects of money growth rate changes into their real and nominal components or identify the link between the formulation of people's expectations and the dissipation of real effects. In an effort to fill this gap, Leonall Andersen and Denis Karnosky (1973) examined the relationship between percentage changes in the money supply and percentage changes in prices and in real output. They found that permanent changes in monetary growth tend to be followed by "a sharp and substantial positive response of output growth for five quarters," whereas it takes the rate of price inflation at least 20 quarters to adjust.

In a later study, John Rutledge (1980) examined the effects of changes in the growth of money -- separated into anticipated and unanticipated components -- on prices and real output. He found that the adjustment of real output to an unanticipated change in the growth of money is about the same as the adjustment of prices to an anticipated change in the growth of money. Both take about eleven quarters to work themselves out. Robert Barro has estimated that an unanticipated rise of 1 percent in the growth of money will generate, in the same year, about a .36 percent rise in the price level and almost a 1 percent rise in real output. The price effect and the real output effect take, respectively, five years and two years to work themselves out.

Conclusion

Although not an exhaustive survey of the literature, the foregoing bibliographic notes acquaint the reader with a reasonably comprehensive sample of economic research on the relationship between the Federal deficit and interest rates, including references to the issues in macroeconomic theory that form the context of the discussion. The review of this sample indicates that controversy prevails, and the issue is yet to be settled in either the theoretical or empirical literature.

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PART III

INTEREST RATES AND THE FEDERAL DEFICIT: SOME EMPIRICAL TESTS

Interest Rates and the Federal Deficit: Some Empirical Tests

This paper presents empirical tests of the hypothesis that higher Federal deficits raise real interest rates. The tests make use of a particular type of equation for the determination of interest rates which is presented in Feldstein and Eckstein (1970). In the first stage of the analysis in Section I the Feldstein-Eckstein equation is estimated over the same sample period as in the original article using the same data concepts, and then reestimated for the period 1965 QI - 1983 QII, the sample used in this paper. The reestimation indicates that the equation fits poorly in the latter period, and therefore needs to be respecified if it is to be used for testing the relationship in the more recent past. This is done in Section II. Finally, the tests for the effects of the deficit using this equation are presented in Section III. The results of the tests indicate that judging by the econometric techniques employed in this paper, high deficits have had virtually no relationship with high interest rates in this time period.

Section I

The interest-rate equation used for the tests in this paper is based upon the type of equation in Feldstein and Eckstein (1970). This equation has been used with variations by other authors, including Feldstein and Chamberlain (1973) and Sinai and Rathjens (1983). Such an equation can be developed from a simple modified LM curve giving the condition for equality of the supply of and demand for the monetary base. This LM curve can be written in implicit form as

$$G(i-p^e,m,x,z)-m=0 \qquad (1)$$

where i is the nominal interest rate, p^e is the expected inflation rate so that $i-p^e$ is the real interest rate, m and x are the logarithms of the real monetary base and real output respectively, z is a vector of additional variables, and the function G is the demand for m. Equation (1) can be solved to isolate the real interest rate on the left-hand side for purposes of estimation:

$$i-p^e=F(m,x,z) \qquad (2)$$

Several variables are included in z. If the Federal deficit affects interest rates, z should include a measure of the level of debt or the change in debt, that is, the deficit. When the government runs a deficit and issues bonds to finance it, private individuals or institutions can purchase these bonds by reducing either their level of consumption, or their holdings of money balances, or their holdings of assets representing claims on real private capital. If these government bonds are substitutes for real private capital in the portfolios of investors, they will be purchased largely by reducing investment. In such a case investment and capital intensity will decline, and the marginal product of capital and real interest rates will rise.

However, if the bonds are perceived as generating future liabilities, such as a future tax burden, these liabilities may bring about reduced consumption and increased private saving which could be used to purchase the bonds, leaving real interest rates and real private investment unchanged. More on these and related issues can be found in various articles surveyed in the companion survey of literature on the subject.

In addition, z should include p^e. This is because an increase in expected inflation lowers the return to holding money, thereby inducing a shift in portfolios away from real money balances. This reduction in the holding of wealth in the form of money could lead to an increase either in consumption or in investment. Insofar as investment increases, there is an increase in capital intensity and a reduction in real interest rates. Moreover, higher inflation rates tend also to be more highly variable, and in general, periods of high inflation have tended to be more unstable, both because of the volatility of the inflation rate itself, and because of the volatile nature of government policy responses to high inflation. Such volatility increases risk and could result in less innovation and technical change, in which case the productivity of capital and real interest rates would tend to be relatively lower. Hence these arguments lead to the conclusion that higher expected inflation brings about lower real interest rates.

In contrast to this discussion, in an equation such as equation (2) it is possible that higher anticipated inflation leads to higher real interest rates rather than lower ones. This could happen if a proportional tax is applied to interest income in nominal terms and nominal interest payments are deductible.1/ The tendency of inflation to raise real interest rates would be stronger insofar as the tax system is progressive, not indexed, and therefore marginal tax rates on interest income increase with inflation through bracket creep. Thus, a priori it cannot be said whether an increase in expected inflation raises or lowers real interest rates. In Sections II and III equations will be presented which use both the before-tax and after-tax interest rate.

The vector of variables z should also include a measure of volatility in financial markets. This is because increased volatility raises risk for investors, who therefore insist on higher risk premiums in real interest rates (in addition to

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1/ Tax effects of this sort are examined in Darby (1975), Feldstein (1976), Peek (1982), and Tanzi (1980).

higher risk premiums in nominal rates), thus causing real interest rates to rise.

The above discussion suggests that equation (2) be written in linear form as:

$$i-p^e=\beta_0+\beta_1 m+\beta_2 x+\beta_3 d+\beta_4 p^e+\beta_5 s+u \tag{3a}$$

where d is a measure of Federal debt or the deficit, s is the measure of financial market volatility, and u is a disturbance. It is hypothesized that $\beta_1<0$ and $\beta_2, \beta_5>0$. If the deficit raises real interest rates, $\beta_3>0$. As noted above, the sign on β_4 is ambiguous. Finally, following Feldstein and Eckstein, in this style of equation p^e is measured as a distributed lag on the inflation rate p,[2] and so after moving p^e to the right-hand side, equation (3a) becomes

$$i=\beta_0+\beta_1 m+\beta_2 x+\beta_3 d+(1+\beta_4)\pi(L)p+\beta_5 s+u \tag{3b}$$

where $\pi(L)$ is a polynomial in the lag operator L, with the sum of coefficients equal to unity. It is understood that variables other than p may also enter the equation with lags.

In this equation the coefficient on the lag on inflation, $1+\beta_4$, may not equal unity. If it does not, the Fisher effect, postulating that changes in inflationary expectations are equally reflected in changes in nominal interest rates, would not hold. On the other hand, over certain periods β_4 may be near 0. This could happen, for example, when inflation is relatively low and stable, and has little effect on investment or on marginal tax rates.

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[2] Distributed lags on inflation were also used in Yohe and Karnosky (1969).

Nevertheless it should be clear that, in general, whatever is the value of β_4 when the interest rate is defined to be before-tax, it should decline and be negative when the same equation is estimated using an after-tax interest rate. This follows from the fact that using an after-tax interest rate removes from the equation the effects of inflation through taxes on before-tax interest rates.

On balance, the existing empirical evidence from a number of studies indicates that β_4 tends to be negative in most time periods even when a before-tax interest rate is used.3/ In many cases $1+\beta_4$ is substantially below unity. Therefore, in the equations done here, $1+\beta_4$ is expected to be below unity when a before-tax interest rate is used, and to decline even more when an after-tax interest rate is used instead.

Equation (3) is estimated using quarterly data for the sample period 1965 QI - 1983 QII. The first step in this estimation is to reproduce as closely as possible Feldstein-Eckstein's specification of this equation (equation (10) in their article)

3/ See Fisher (1930), Pearce (1979), Summers (1983), and Wood (1981).

for their original sample 1954 QI - 1969 QII, and test whether that specification is suitable for the later sample period. In reproducing the equation, except as noted below the variables are defined as nearly as possible to be the same as in Feldstein-Eckstein, so far as could be determined from their description in the original article. Of course there have been data revisions since their paper was written. The revised data are used here, so some differences from their results can be expected on the basis of these revisions alone. Similarly the estimation technique is as near to theirs as could be determined from their paper.

The following variables are used. For i the variable used is RI, the interest rate on seasoned Moody's AAA corporate bonds. Some of the independent variables are measured in real per capita terms; in each case this is done by dividing by the implicit price deflator for GNP and by the resident population. m is HPNL, the logarithm of the real per capita monetary base, using monetary base data from the Federal Reserve Bank of St. Louis. x is QNL, the logarithm of real GNP minus real GNP produced in the government sector, all on a per capita basis. This is a measure of real output produced in the private sector. d is DPNL, the logarithm of real per capita interest-bearing public debt securities held by private investors plus matured public debt and debt bearing no interest. There were changes in the definition of this series around 1968, and after 1968 QIII these data are spliced with old series embodying the same concepts. p is PCG, the percent change from the previous quarter at an annual rate of the implicit price deflator for personal consumption expenditures. This differs from the specification used by Feldstein and Eckstein, since they do not annualize the growth rate.

Following Feldstein and Eckstein, the variable RID lagged one quarter is included, where RID is the first difference in RI. As discussed by them, such a variable measures expected changes in interest rates. As such it captures some but not all of the instability in financial markets that the variable s represents. No other measure of s is included.

Table 1 contains ordinary least squares estimates of the original Feldstein-Eckstein specification of equation (3) (equation (10) in their paper) using the data described above for their original sample period 1954 QI - 1969 QII, for the period 1965 QI - 1983 QII, and for the entire sample 1954 QI - 1983 QII. In Table 1 these three estimates are numbered equations (4), (5), and (6), and they differ only in that they are for different sample periods. The distributed lag on PCG(-1) is a third-degree polynomial distributed lag with no endpoint constraints. The a_i are the lag coefficients for this distributed lag. In these and all equations in this paper the t-ratios are in parentheses beneath the coefficients.

Equation (4) is, on balance, fairly close to the original equation (10) of Feldstein and Eckstein.[4] The most striking difference, however, is that the sign on the debt variable has switched to negative, while at the same time this variable is significant. A negative sign, of course, says that more real debt per capita lowers interest rates. This switch in sign suggests that the influence of government debt in this equation over this sample is uncertain at best.

Equation (5) for the sample 1965 QI - 1983 QII differs from equation (4) in several respects. The coefficients on HPNL and QNL are much larger in absolute value. The debt term is still negative, and now it is highly significant. The RID(-1) term is very weak and of the wrong sign. And the coefficients on the price terms sum to a negative number. These results imply that this particular specification of equation (3) is unstable over time, and the equation needs to be respecified if it is to be of use in the later sample period. Moreover, the low Durbin-Watson statistic suggests that the equation needs to be corrected for serial correlation. Equation (6), run for the entire sample 1954 QI - 1983 QII, confirms these conclusions. Here the debt variable switches back to its original sign. However the Durbin-Watson statistic is far too low.

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[4] As in their original equation, the sum of lag coefficients on PCG indicates that a change in expected inflation changes the interest rate by about the same amount. As noted before, this result is different from most empirical work, which gets a coefficient below unity.

Table 1

Estimates of the Feldstein-Eckstein
Specification of the Interest-Rate Equation

Equation Number	4	5	6
Dependent Variable	RI	RI	RI
Sample	1954QI-1969QII	1965QI-1983QII	1954QI-1983QII
Estimation Method	OLS	OLS	OLS
Independent Variables:			
Constant	-46.3140	-699.232	-70.6909
	(-10.78)	(-11.34)	(-2.70)
HPNL	-5.4290	-66.9358	-10.7192
	(-8.36)	(-13.16)	(-5.83)
QNL	4.5801	27.4776	8.4721
	(6.51)	(8.83)	(7.13)
DPNL	-1.6072	-4.7611	3.0435
	(-2.07)	(-4.48)	(3.33)
PCG	0.0425	0.0255	-0.0201
	(3.20)	(0.46)	(-0.36)
RID(-1)	0.6897	-0.0770	0.3997
	(6.34)	(-0.44)	(1.77)
Coefficients of Polynomial Distributed Lag on PCG(-1):			
	a_1 = 0.0604	a_1 = -0.0140	a_1 = 0.0717
	a_2 = 0.0612	a_2 = -0.0093	a_2 = 0.0737
	a_3 = 0.0612	a_3 = -0.0058	a_3 = 0.0738
	a_4 = 0.0607	a_4 = -0.0033	a_4 = 0.0723
	a_5 = 0.0595	a_5 = -0.0018	a_5 = 0.0695
	a_6 = 0.0579	a_6 = -0.0012	a_6 = 0.0654
	a_7 = 0.0559	a_7 = -0.0014	a_7 = 0.0603
	a_8 = 0.0534	a_8 = -0.0023	a_8 = 0.0543
	a_9 = 0.0507	a_9 = -0.0038	a_9 = 0.0477
	a_{10} = 0.0477	a_{10} = -0.0058	a_{10} = 0.0406
	a_{11} = 0.0445	a_{11} = -0.0083	a_{11} = 0.0331
	a_{12} = 0.0413	a_{12} = -0.0110	a_{12} = 0.0256
	a_{13} = 0.0380	a_{13} = -0.0141	a_{13} = 0.0181
	a_{14} = 0.0347	a_{14} = -0.0172	a_{14} = 0.0109
	a_{15} = 0.0314	a_{15} = -0.0204	a_{15} = 0.0041
	a_{16} = 0.0283	a_{16} = -0.0235	a_{16} = -0.0020
	a_{17} = 0.0255	a_{17} = -0.0265	a_{17} = -0.0073
	a_{18} = 0.0229	a_{18} = -0.0293	a_{18} = -0.0117
	a_{19} = 0.0206	a_{19} = -0.0317	a_{19} = -0.0149
	a_{20} = 0.0187	a_{20} = -0.0337	a_{20} = -0.0167
	a_{21} = 0.0173	a_{21} = -0.0352	a_{21} = -0.0170
	a_{22} = 0.0165	a_{22} = -0.0361	a_{22} = -0.0155
	a_{23} = 0.0162	a_{23} = -0.0363	a_{23} = -0.0122
Sum	0.9245	-0.3719	0.6238
	(15.45)	(-2.57)	(6.94)
Adjusted R^2	0.987	0.957	0.935
Std. Error	0.1093	0.5519	0.7798
D-W	1.51	1.17	0.26

Section II

The results in the previous section indicate that the original Feldstein-Eckstein specification of this interest-rate determination equation needs to be changed for the sample 1965 QI - 1983 QII. This is done in this section, except that variables representing the Federal debt or deficit are omitted. These variables are added in Section III to test for their possible effect on the interest rate.

In respecifying the equation several changes are made. These changes were developed by experimenting with alternative specifications of equation (3). First, QNL is replaced by XNL, the logarithm of real GNP per capita. Since real GNP is a broader measure of output, it should reflect better the total effects of output upon interest rates. This variable comes in the equation as XNLA, which is defined as:

$$XNLA = (\Sigma_{i=o}^{-2} XNL(i))/3 \qquad (7)$$

Also, RID(-1) is replaced by RIDSL, which is

$$RIDSL = (\Sigma_{i=-2}^{-9} RIDS(i))/8 \qquad (8)$$

where RIDS is the absolute value of RID.

RIDSL is a distributed lag on the absolute value of changes in the interest rate and is a better measure than RID(-1) of volatility in financial markets. The previous section showed that RID(-1) performs poorly and a better variable is needed.

In addition, the distributed lag using the current value of PCG and a polynomial lag on PCG(-1) is replaced by a Pascal lag on the current and lagged values, which captures the lag pattern more concisely. In this paper a Pascal lag of a given order and average lag is computed by calculating the first 21 lag coefficients for that order and average, then normalizing them so they sum to unity and applying them to the current and lagged values of the variable. In the following tables PCG04 and PCG08 are Pascal lags on PCG of second and third orders respectively with average lags of 4 and 8 quarters respectively. In the previous section the average lag in equation (4) in the original sample 1954 QI - 1969 QII was over 8 quarters. However the negative signs on the lags in the 1965 QI - 1983 QII sample suggest that in that sample the average lag should be much shorter. As shown below, the four-quarter average lag works well.

A final change is that HPNL is lagged two quarters. This two-quarter lag is consistent with the lag back two quarters of XNL, and the two-quarter lag of the two-year average of RIDS.

Estimates of the interest-rate equation respecified in this manner are presented in Tables 2 and 3. Included is an equation using the after-tax interest rate RIT defined as RI(1-T), where T is the average marginal tax rate on interest income. Data for T were kindly provided by Vito Tanzi. These data are available only through 1981, so equation (12) stops at that point.

Table 2

Final Specification of the Interest-Rate Equation

Equation Number	9	10	11	12
Dependent Variable	RI	RI	RI	RIT
Sample	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII	1965QI-1981QIV
Estimation Method	OLS	ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-164.626	-259.860	-177.408	-93.1944
	(-3.94)	(-3.94)	(-3.06)	(-1.82)
HPNL(-2)	-17.1459	-25.4711	-18.4304	-10.0429
	(-4.96)	(-4.68)	(-3.72)	(-2.26)
XNLA	8.5508	10.1366	9.1457	5.4986
	(8.00)	(5.11)	(5.21)	(3.38)
PCG04	0.4162	0.4493	0.4583	0.3136
	(9.65)	(5.68)	(6.39)	(5.01)
RIDSL	5.0242	3.2855	3.4422	1.2472
	(10.72)	(4.45)	(4.65)	(1.83)
Adjusted R^2	0.974	0.870	0.991	0.977
Std. Error	0.4521	0.3643	0.7494	0.4922
D-W	0.98	1.81	1.77	1.80
ρ	----	0.6379	0.6047	0.7846

Table 3

Alternative Specifications of the Interest-Rate Equation

Equation Number	13	14	15
Dependent Variable	RI	RI	RI
Sample	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII
Estimation Method	Weighted ML	Weighted ML	Weighted ML
Independent Variables:			
Constant	-172.251 (-2.86)	-181.040 (-3.26)	-77.9902 (-0.91)
HPNL		-12.2172 (-1.63)	
HPNL(-1)		10.2937 (1.15)	
HPNL(-2)	-17.9934 (-3.48)	-16.9534 (-2.26)	-10.0458 (-1.29)
XNLA		9.4869 (5.62)	8.2218 (2.25)
XNL	4.0470 (0.98)		
XNL(-1)	0.8672 (0.18)		
XNL(-2)	4.1764 (1.01)		
PCG04	0.4559 (5.96)	0.4070 (5.87)	
PCG08			0.6940 (4.10)
RIDSL	3.4982 (4.58)	3.9432 (5.96)	0.2344 (0.17)
Adjusted R^2	0.991	0.994	0.920
Std. Error	0.7594	0.7492	0.8008
D-W	1.76	1.82	1.82
ρ	0.6015	0.5005	0.9030

Equation (9) is the respecified equation estimated using ordinary least squares. The low Durbin-Watson statistic indicates serial correlation, so the equation is reestimated as equation (10) by full maximum likelihood with a first-order serial correlation correction. However in addition to serial correlation, there is reason to believe that the error term in this equation is heteroscedastic. Specifically, when volatility in financial markets as measured by RIDSL is higher, there will probably be more variability in RI for given values of the independent variables. To test for this,[5] RIDSL was put in ascending order and the rho-transformed variables from equation (10) were reordered correspondingly. The reordered sample of 74 observations was broken into three subsamples of 28, 18, and 28 observations, and the ratio of the residual sums of squares from the last and first subsamples was computed. The result was 6.43, which when compared with an F distribution with 23 and 23 degrees of freedom leads to rejection of the null hypothesis at the usual levels of significance.

In correcting for this heteroscedasticity, it was assumed that the variance of the disturbance in the equation was proportional to RIDSL. Accordingly, the equation was respecified by dividing all variables by the square root of RIDSL, and the resulting equation was estimated by maximum likelihood with the first-order serial correlation correction. The resulting estimates, termed weighted maximum likelihood estimates, are in equation (11). Using equation (11) and the same procedure as in the previous paragraph, the statistic for testing for heteroscedasticity is reduced to 1.87, which is no longer significant.

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[5] This test relies upon the work in Goldfeld and Quandt (1965). See also Theil (1971).

On balance the estimates in equations (9), (10), and (11) are relatively similar despite the different estimation techniques, which shows that this particular equation is robust and captures a strong empirical regularity in the data. Equation (11) is the best equation. All the variables are highly significant. The coefficient on PCG04 is significantly different from unity, indicating that changes in inflation do not change RI to the same degree. As discussed before, this result has been found in other work.

Table 3 contains estimates of variants of equation (11). This table shows that the lags on XNL are collinear, and they need to be weighted together. Also, the substitution of PCG08 for PCG04 makes its coefficient not significantly different from unity, but the quality of the other coefficients deteriorates sharply.

Finally, in equation (12) RIT is substituted for RI. The result is similar to equation (11), although the absolute values of the coefficients tend to fall. As hypothesized in Section I, the coefficient on PCG04 falls between equations (11) and (12).

SECTION III

In this section measures of the Federal deficit or debt are added to equation (11) to test whether they have any discernible effect on interest rates. The first measure added is DPNL as defined in the first section. Also tried is FPNL, which is the first difference in DPNL, that is, DPNL-DPNL(-1). And finally the variable SPN is added, which is the real per capita Federal surplus from the National Income and Product Accounts multiplied by 1,000,000.

Tables 4, 5, and 6 contain estimates of equation (11) including various lags on these variables. Table 4 contains the equations with lags on DPNL. Table 5 contains lags on FPNL, and Table 6 contains lags on SPN. The variables DPNL04, FPNL04, and SPN04 are second-order Pascal lags on DPNL, FPNL, and SPN, respectively, with average lag of 4 quarters.

Table 4

Estimates of the Before-Tax Interest-Rate
Equation including DPNL

Equation Number	16	17	18	19
Dependent Variable	RI	RI	RI	RI
Sample	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-231.558	-206.309	-212.768	-147.344
	(-3.34)	(-2.86)	(-2.66)	(-2.04)
HPNL(-2)	-23.4899	-20.8375	-21.3883	-15.9987
	(-3.95)	(-3.18)	(-3.15)	(-2.67)
XNLA	11.1883	9.6731	9.9906	8.5872
	(5.86)	(4.68)	(4.53)	(4.65)
PCG04	0.3737	0.4218	0.4203	0.4773
	(5.50)	(5.33)	(4.83)	(6.00)
RIDSL	4.3550	3.9420	3.3991	3.7550
	(7.16)	(5.55)	(4.46)	(4.95)
DPNL	-3.6217	-1.9624	-0.7205	
	(-1.29)	(-0.97)	(-0.67)	
DPNL(-1)	-0.3550	-0.0027		
	(-0.07)	(-0.00)		
DPNL(-2)	0.7152	1.5626		
	(0.14)	(0.77)		
DPNL(-3)	-1.2164			
	(-0.23)			
DPNL(-4)	4.0273			
	(1.38)			
DPNL04				0.6597
				(0.59)
Adjusted R^2	0.997	0.994	0.992	0.992
Std. Error	0.7399	0.7609	0.7529	0.7536
D-W	1.71	1.73	1.76	1.76
ρ	0.3366	0.4796	0.5823	0.5750

Table 5

Estimates of the Before-Tax Interest-Rate Equation including FPNL

Equation Number	20	21	22	23
Dependent Variable	RI	RI	RI	RI
Sample	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-204.580	-200.159	-179.147	-215.429
	(-4.66)	(-4.70)	(-3.27)	(-4.70)
HPNL(-2)	-21.1320	-20.5627	-18.5438	-22.7910
	(-5.56)	(-5.61)	(-3.96)	(-5.58)
XNLA	10.3865	9.8875	9.0881	12.2203
	(6.99)	(7.91)	(5.59)	(7.19)
PCG04	0.4005	0.4150	0.4494	0.3633
	(7.19)	(8.57)	(6.80)	(6.51)
RIDSL	4.5331	4.5981	3.7808	3.9136
	(8.51)	(9.11)	(5.52)	(7.18)
FPNL	-3.5331	-5.4870	-1.4385	
	(-1.19)	(-2.42)	(-0.78)	
FPNL(-1)	-3.8382	-0.8981		
	(-1.27)	(-0.43)		
FPNL(-2)	-2.5341	-5.3350		
	(-0.79)	(-2.28)		
FPNL(-3)	-4.2210			
	(-1.34)			
FPNL(-4)	0.7049			
	(0.22)			
FPNL04				-20.1086
				(-3.15)
Adjusted R^2	0.997	0.997	0.993	0.996
Std. Error	0.7411	0.7404	0.7532	0.7198
D-W	1.71	1.75	1.75	1.71
ρ	0.3409	0.3176	0.5449	0.3884

Table 6

Estimates of the Before-Tax Interest-Rate
Equation including SPN

Equation Number	24	25	26	27
Dependent Variable	RI	RI	RI	RI
Sample	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII	1965QI-1983QII
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-188.312	-194.676	-190.717	-191.487
	(-4.57)	(-4.44)	(-3.93)	(-4.87)
HPNL(-2)	-20.0534	-20.1671	-19.5289	-20.9441
	(-5.68)	(-5.36)	(-4.70)	(-6.06)
XNLA	10.8848	9.9696	9.2255	12.3592
	(8.16)	(7.58)	(6.56)	(8.35)
PCG04	0.4001	0.4309	0.4557	0.3767
	(7.89)	(8.35)	(7.96)	(7.84)
RIDSL	4.8487	4.7815	4.3831	4.5291
	(9.62)	(8.90)	(7.25)	(9.38)
SPN	0.1007	0.1114	0.1727	
	(1.07)	(1.19)	(2.09)	
SPN(-1)	0.0611	0.0645		
	(0.56)	(0.60)		
SPN(-2)	0.0350	0.1178		
	(0.32)	(1.23)		
SPN(-3)	0.0778			
	(0.76)			
SPN(-4)	0.1136			
	(1.22)			
SPN04				0.5260
				(4.00)
Adjusted R^2	0.997	0.997	0.995	0.997
Std. Error	0.7283	0.7356	0.7397	0.7020
D-W	1.73	1.73	1.74	1.73
ρ	0.3046	0.3518	0.4493	0.3287

In order for the level of the Federal debt or the change in the debt to raise interest rates, the sign on the debt terms in the equations in Tables 4 and 5 should be positive. However all the coefficients either have a negative sign or are positive and insignificant. In the case of FPNL and FPNL(-2) in equation (21) and FPNL04 in equation (23), the sign is negative and significant, indicating that an increase in the debt is correlated with lower interest rates. In addition, the other coefficients in the equations remain near to those in equation (11). Hence the debt variables do not contribute to equation (11), nor do they suggest that a change in specification is needed.

The same conclusions hold with regard to lags on SPN in Table 6. If deficits raise interest rates, the sign on such lags should be negative. However all the signs are positive, and SPN04 is significant. Again the other coefficients change little, so this deficit variable contributes nothing to the equation.

The equations in Tables 4, 5, and 6 are presented in Tables 7, 8, and 9 with the dependent variable changed to the after-tax interest rate RIT, and with the sample 1965 QI - 1981 QIV. The results are similar to those using the before-tax interest rate. Lags on DPNL and FPNL have negative or positive and insignificant coefficients. Again FPNL04 is significant negative. All the signs for SPN are positive. Again SPN04 is positive and significant.

Table 7

Estimates of the After-Tax Interest-Rate Equation including DPNL

Equation Number	28	29	30	31
Dependent Variable	RIT	RIT	RIT	RIT
Sample	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-112.530	-102.994	-106.143	-91.6961
	(-2.10)	(-1.73)	(-1.80)	(-1.58)
HPNL(-2)	-11.7598	-10.6430	-10.9254	-9.9487
	(-2.54)	(-2.10)	(-2.17)	(-2.05)
XNLA	6.2653	5.4962	5.6262	5.4978
	(4.26)	(3.32)	(3.38)	(3.31)
PCG04	0.2173	0.2639	0.2673	0.3162
	(4.24)	(3.98)	(4.02)	(4.50)
RIDSL	2.8275	1.9298	1.7185	1.2451
	(6.17)	(3.21)	(2.82)	(1.76)
DPNL	-2.2385	-0.5956	-0.6390	
	(-1.18)	(-0.45)	(-0.80)	
DPNL(-1)	-0.4737	-0.5282		
	(-0.14)	(-0.29)		
DPNL(-2)	0.1819	0.5621		
	(0.05)	(0.42)		
DPNL(-3)	-0.3647			
	(-0.10)			
DPNL(-4)	2.4121			
	(1.21)			
DPNL04				0.0796
				(0.07)
Adjusted R^2	0.996	0.989	0.987	0.976
Std. Error	0.4979	0.5043	0.4961	0.4961
D-W	1.67	1.74	1.76	1.80
ρ	0.3961	0.6472	0.6874	0.7868

Table 8

Estimates of the After-Tax Interest-Rate
Equation including FPNL

Equation Number	32	33	34	35
Dependent Variable	RIT	RIT	RIT	RIT
Sample	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-83.0189 (-2.35)	-76.8514 (-2.18)	-93.5644 (-1.78)	-94.5330 (-2.66)
HPNL(-2)	-9.2966 (-2.99)	-8.5467 (-2.79)	-10.0835 (-2.21)	-10.7367 (-3.36)
XNLA	5.6640 (4.81)	5.0705 (4.98)	5.5245 (3.31)	6.8686 (5.39)
PCG04	0.2374 (5.57)	0.2564 (6.70)	0.3151 (4.95)	0.2165 (5.28)
RIDSL	2.9492 (7.06)	2.9507 (7.11)	1.2070 (1.74)	2.5639 (6.27)
FPNL	-1.6403 (-0.80)	-2.9270 (-1.83)	0.0875 (0.08)	
FPNL(-1)	-2.1895 (-1.09)	-0.7387 (-0.54)		
FPNL(-2)	-2.3181 (-1.08)	-3.2890 (-1.97)		
FPNL(-3)	-2.0874 (-0.99)			
FPNL(-4)	-0.6757 (-0.31)			
FPNL04				-14.0588 (-3.09)
Adjusted R^2	0.996	0.996	0.976	0.996
Std. Error	0.4998	0.4973	0.4960	0.4766
D-W	1.68	1.71	1.80	1.69
ρ	0.4036	0.4142	0.7906	0.4344

Table 9

Estimates of the After-Tax Interest-Rate
Equation including SPN

Equation Number	36	37	38	39
Dependent Variable	RIT	RIT	RIT	RIT
Sample	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV	1965QI-1981QIV
Estimation Method	Weighted ML	Weighted ML	Weighted ML	Weighted ML
Independent Variables:				
Constant	-62.1310	-66.6548	-70.5344	-69.4095
	(-1.99)	(-1.89)	(-1.75)	(-2.28)
HPNL(-2)	-7.6418	-7.6734	-7.8693	-8.6371
	(-2.82)	(-2.51)	(-2.25)	(-3.22)
XNLA	5.6932	4.9288	4.6624	6.6492
	(5.71)	(4.74)	(3.94)	(6.09)
PCG04	0.2409	0.2700	0.2880	0.2323
	(6.48)	(6.78)	(6.13)	(6.61)
RIDSL	3.1964	3.0000	2.5197	2.9457
	(8.42)	(6.98)	(4.96)	(7.96)
SPN	0.0601	0.0648	0.0797	
	(0.93)	(1.00)	(1.31)	
SPN(-1)	0.0131	0.0234		
	(0.18)	(0.33)		
SPN(-2)	0.0214	0.0806		
	(0.29)	(1.22)		
SPN(-3)	0.0818			
	(1.20)			
SPN(-4)	0.0749			
	(1.18)			
SPN04				0.3528
				(3.71)
Adjusted R^2	0.997	0.996	0.993	0.997
Std. Error	0.4889	0.4982	0.4963	0.4690
D-W	1.71	1.71	1.73	1.71
ρ	0.3418	0.4282	0.5629	0.3759

CONCLUSIONS

This paper examined the empirical evidence of an association between changes in the Federal debt or deficit and real interest rates. The approach taken was to estimate an interest-rate equation without the debt or deficit measures, and then add them in to test for their statistical significance.

The interest-rate equation was based upon equation (10) in Feldstein and Eckstein (1970). The first step was to replicate this equation as nearly as feasible for the original sample period, and extend it for the sample 1965 QI - 1983 QII. The results indicated that this type of equation could be used for the latter sample, but that it needed respecification. The respecified equation contained more lags than the original.

Measures of debt and the deficit were then added to this equation. Such measures were either of the wrong sign, or of the correct sign but insignificant. Moreover the other coefficients were little affected. On the basis of these tests, it would appear that over the sample examined high Federal deficits have had at most a negligible effect in raising real interest rates.

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Senator **Jepsen**. We thank you, Mr. Johnson.

Now, Mr. Carlson.

STATEMENT OF JACK CARLSON, EXECUTIVE VICE PRESIDENT AND CHIEF ECONOMIST, NATIONAL ASSOCIATION OF REALTORS, WASHINGTON, D.C.

Mr. **Carlson**. Thank you very much, Mr. Chairman, for having this set of hearings. This really is in conformity with the Employment Act of 1946 which created the Joint Economic Committee and the President's Council of Economic Advisers.

I am very sorry that Secretary Regan is not here. I understand he's at the Augusta Country Club playing golf and he is a very good golfer, but I do think this issue is very important. It's interesting to note that both the Secretary of the Treasury and, of course, the Assistant Secretary who testified before you, differs from the President of the United States, and I read from the President's own economic message, not the Council's message but the President's message:

> Federal borrowing competes with private investment for available savings. If the government continues to borrow large amounts to finance its deficit, the real interest rate will remain high and discourage private investment. This process of "crowding out" will tend to depress private investment in the years ahead unless the budget deficit is progressively reduced.

Now the Secretary's statement is wrong, and those who are supporting the Secretary's statement are wrong. I could refer to other people in the administration, particularly Martin Feldstein, and his analysis is fairly extensive and it is empirical. It is not just a matter of expositional approach, assumptions, and assertions and ifs, but it is empirical analysis; and also the other leading figures. I could refer to Alice Rivlin and I could refer to Paul Volcker's testimony yesterday and his view on this particularly important topic.

That is why we were considerably concerned. It was not just off the top of the head testimony by the Secretary, but actually in his prepared statement before the Chemical Manufacturers Association on September 8, when he said, "Deficits cause a lot of problems. It just happens that high interest rates are not one of them." The Secretary went on to imply that "the banks and other financial institutions" are to blame for the fact that "real interest rates remain unusually high." He concluded that "there is no good reason or excuse for those rates to be as high as they are."

If this were a statement by an ordinary citizen you could dismiss it, but it is from the President's chief economic policy spokesperson and, therefore, it has to be treated and considered.

He is since quoted in the newspaper this morning as saying that this is a problem that should be taken up in 1985 and 1986. Now everybody knows that any type of a change to bring down the deficit that has pain associated with it in the economic context, that has to be on the upswing of the business cycle and it cannot be on the downswing or it politically cannot be passed. So, in effect, putting it off until 1985 or 1986 you are putting it off for another recovery, perhaps 1988 or 1989.

So the time is now to make the change, not to wait until after the November 6, 1984, election that seems to be the preoccupation of the administration, and I should say, members and leaders of the Congress.

Now the Secretary in his capacity as financial entrepreneur—and he of course has a very great track record in that regard—complained about deficits and their impact upon interest rates, and it is not from that vantage point that he talks from, but from the 22-page report from the Treasury that he described—not the authors described—he's described as "an exhaustive study" which proved that, "there simply is no empirical evidence that correlates deficits and interest rates."

Now we do not find this 22-page report exhaustive. In fact, the authors quite modestly contend that it is not either, and it is not empirical analysis, and after all, that is what we need to look at, and our comments will be based on some empirical analysis to make our contention that there is a link between the deficit and interest rates.

I would like to go to your questions, Mr. Chairman, that you gave to us, and try to answer each one of those.

The first one you gave was: "Are Federal budget deficits primarily responsible for high interest rates or are there other factors, such as monetary policy, which may be more influential?"

Your question No. 4 was: "If deficits do impact on interest rates, what is the order of magnitude, and is it the current year's deficit or out-year deficits which are most important for long-term loans such as mortgages?"

Our empirical analysis suggests that current long-term interest rates are determined by three primary factors (a) inflation expectations, (b) monetary policy, and (c) borrowing to finance the Federal deficit.

By the way, the analysis by the Treasury left out the first of these two to a significant extent.

As for the orders of magnitude of an average AAA corporate bond rate of just over 12 percent during the third quarter of this year, inflation expectations were contributing, we think, about 6 percentage points, monetary policy in relation to the economy's demand for money was adding about 5 percentage points, while the direct pressure on credit markets of financing the increase in the current stock of Federal debt was adding about 1 percentage point.

To assess what impact current and expected future deficits are having on current interest rates we need to consider the likely effect of adopting a policy that would eliminate the structural deficit or the standardized deficit that has been referred to. Despite the fact that the current inflation is about 4 percent, investors in credit markets expect inflation to accelerate significantly to 6 to 9 percent over the next 12 to 24 months, the time that the Treasury Secretary would do nothing. This fact is evident from observing the current term structure or yield curve for U.S. Treasury debt instruments. The yield on Treasury securities with a maturity of 1 year rises abruptly over the yield on 3- and 6-month securities. As maturity extends to 5, 10, and 20 years, the yield continues to rise significantly. This is a much steeper increase in yields than would be the case if inflation were not expected to accelerate.

The expectation of accelerating inflation is attributable to the fact that as the economy approaches full employment the deficit will still be in the $100 to $150 billion range. This represents demand for $100–$150 billion in output for which the economy does not have the capacity to produce. The only result can be rising prices. By adopting a policy of deficit reduction, inflation expectations could be reduced sufficiently to reduce long-term interest rates by at least 1 full percentage point soon after being enacted. The direct impact of financing the Federal debt would continue to put upward pressure on interest rates in the near term since the deficit remains fairly large until the outyears. Some additional modest reduction in interest rates in the short run may be possible since the tighter fiscal policy and diminished inflation expectations may permit the Fed to adopt a less restrictive stance. It is not inconceivable that long-term rates could fall nearly 2 percentage points in a relatively short period of time. In the long run, long-term rates should drop by 3 to 4 percentage points.

By adopting our proposed deficit reduction proposal, we could expect interest rates to drop by at least 1.5 percentage points by election time next year. To reduce the deficit would reduce interest rates. Most of the reduction would come from less inflationary expectation; some from relaxation of monetary policy; and some from less current crowding out. And we do have estimates in our testimony as to what these would do in a forecast sense.

Our message here is, it is not a good gamble for the Congress and the President to wait out this election and do nothing and then decide to do something in 1985.

Question No. 2: "Is it the deficit itself or the high level of Government spending which actually crowds out in financial markets?"

Our answer is, in our opinion, crowding out means that resources which would have been devoted to expanding the economy's productive capacity and thereby enhancing the American standard of living are used instead by the Government for purposes which either do not improve our productive capacity at all or to less an extent than if the resources had remained in the private sector. Therefore, a given dollar increase in Government expenditures crowds out some private investment, regardless of how that expenditure is financed. However, the severity of the crowding out is many times worse if the Government expenditure is financed. However, the severity of the crowding out is many times worse if the Government expenditure is financed by borrowing as opposed to taxation. One dollar raised through personal income taxes reduces private consumption much more than private saving, perhaps 85 to 90 cents on the dollar of consumption and 10 to 15 cents from savings. Thus, to a large extent taxation replaces private consumption with Government consumption. On the other hand, a dollar raised through Government borrowing transfers savings directly into consumption, whether it is through the entitlement program or through the built-in defense spending. Although difficult to estimate, I feel comfortable that for each dollar of Government borrowing 75 cents is taken from private investment and converted into consumption, thereby limiting the capacity to grow and thus the actual growth of the American standard of living in future years.

Your question No. 3: "Could we expect the same impact on interest rates from a deficit reduction program which relies primarily on spending cuts and one which relies instead on tax increases?"

And our answer: Although we would favor reducing the Federal deficit by reduction in spending programs to limit the size and intrusiveness of government in our lives—and thereby we do not have a difference with the testimony already given—we recognize the inability of the administration and the Congress to find such a compromise solution. If deficit reduction were provided by restraining consumption instead of investment through a combination of slower growth in spending and tax increases, both the deficit and real interest rates would be reduced. For example, the proposals for dampening the automatic changes in consumption-oriented spending programs and personal income taxes would be such a program. The "Three-for-all" program introduced by Republican Senator John Danforth and Democratic Senator David Boren—and there is a counterpart measure—would dampen the impact of the increases in the CPI on the automatic growth of entitlement programs, including social security and military and Government retirement program, and thus reduce the size of the tax cut on personal income taxes each year. For example, if consumer price inflation is 7 percent during 1985, the automatic increase in entitlements would be 4 percent and the automatic increase in personal income tax brackets would be 4 percent. This small sacrifice for most Americans would lower the deficit each year until the budget is finally balanced—the structural budget—within 5 years at full employment.

Immediately after enactment of such a policy, people would realize the United States is reducing the deficit and they would fear less Government-driven inflation in future years. They would expect more savings to be available for investment and thus less crowding out. Interest would decline fairly rapidly at first because of the reduction in inflationary expectations. More adequate housing would be provided for more households, thus rekindling the dream of home ownership instead of the current trend in the opposite direction fostered by the administration. Greater investment in structures and equipment would be forthcoming, increasing productivity and providing safer workplaces. People would invest more in education and training to upgrade their skills and their understanding and participation in our democratic society. Moreover, this would occur in every State of the Union, as my prepared statement states: Just choosing one State at random, the State of Iowa, if you had to pick one, you could expect an increase in jobs in Iowa of 21,000, an increase of income per household of $1,600, an increase in existing homes to 17,000, increase of new home starts of 5,700. I do have, by random, another State, but I won't go on.

Thus, "Three-For-All" would be fair for all and would require only a small sacrifice for most Americans to keep the recovery going and America growing. This would be sound economic policy as well as good politics. I would also add that politically the best time to institute a deficit reduction program such as "Three-For-All" is during a recovery when incomes are growing rapidly and inflation is relatively low as is anticipated for the remainder of this year and most of 1984. The small sacrifice needed would be less noticeable since, to a large extent, it would be offset by the growth in incomes.

One last comment, Mr. Chairman, in answer to your four questions, is to encourage this committee to request the Treasury Secretary to give the award that he has offered for someone showing the link between deficits and interest rates, that that award go to this committee to reduce the deficit and to reduce the interest rates and shore up the economy.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Carlson, together with an attachment and appendixes, follows:]

PREPARED STATEMENT OF JACK CARLSON

I am Jack Carlson, Executive Vice President and Chief Economist of the NATIONAL ASSOCIATION OF REALTORS®. On behalf of the more than 600,000 members of the National Association, we greatly appreciate the opportunity of testifying before the Joint Economic Committee. We commend the Chairman, Senator Roger Jepsen, for holding this hearing. He is truly carrying out the mandate of the Employment Act of 1946 which created the Joint Economic Committee in the Congress and created the President's Council of Economic Advisors in the Executive Branch. Review of such policy issues as "the linkage between Federal budget deficits and interest rates" is indeed the purpose for which this Committee was created.

BACKGROUND

Most economists and political leaders realize the damage done by persistently high federal deficits. In his 1983 Economic Report, President Reagan states:

> "Federal borrowing competes with private investment for available savings. If the government continues to borrow large amounts to finance its deficit, the real interest rate will remain high and discourage private investment. This

> process of "crowding out" will tend to depress private investment in the years ahead unless the budget deficit is progressively reduced."[1]

Dr. Martin Feldstein, the Chairman of the President's Council of Economic Advisors, has repeatedly stated and testified that, based on his extensive analysis, the President's statement is correct. Dr. Alice Rivlin, the former Director of the Congressional Budget Office, has said the same. Paul Volcker, the Chairman of the Board of the Federal Reserve System, has said the same. The Democratic and Republican members of the Senate Finance Committee, in a sense of the Congress Resolution last month, said the same. The sponsors of bi-partisan bills aimed at reducing the deficit introduced in both the Senate and the House (S.1627 and H.3790) have said the same. The Business Council of the Democratic National Committee said the same. There was a common understanding that persistently high federal deficits cause interest rates to be higher than they otherwise would be and thereby limit the growth of the American standard of living.

However, on September 8, in a speech before the Chemical Manufacturers Association, the President's chief economic spokesman, Secretary of the Treasury Donald Regan said that deficits "...cause a lot of problems. It just happens that high interest rates are not one of them." The Secretary went on to imply that "...the banks and other financial institutions..." are to blame for the fact that "...real interest rates...remain unusually high." He concluded that there is no "...good reason--or...excuse--for those rates to be as high as they are."

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[1] Economic Report of the President, February 1983, p.5.

If these were simply the opinions of a fellow citizen, the public could choose to ignore them if they felt they were wrong of self-serving. But when such statements are made by the President's chief economic policy spokesperson, then every citizen has the right, indeed the duty, to call for proof, clarification, modification, or retraction. This is particularly true since the implication of the Secretary's remarks is that there is no need to reduce the $200+ billion federal deficits projected for the next several years until after the 1984 elections, if ever.

If left unchallenged, the Secretary's views could justify the do-nothing or do-very-little posture of all incumbent politicians including the President and the Democratic and Republican members of the Congress. The notion that $200 billion deficits don't matter must be firmly and finally laid to rest if Americans are to be free of high interest rates and the dismal economic performance they have caused.

In addition to being misleading, the Secretary's written speech contained apparent inconsistencies. For example, after stating that there is no relationship between federal deficits and interest rates, the Secretary then concedes that deficits "...are a serious problem because they constrict capital formation and economic expansion." In a market economy capital formation is constricted through higher interest rates. This inconsistency makes it even more imperative that his statements be scrutinized so as not to allow faulty statements to perpetuate bad economic policy.

We were very surprised at the limited basis for Secretary Regan's statement. He was an experienced financial entrepreneur and had complained of the adverse effect of deficits from that vantage point. Nonetheless, he set aside his own past views and based his remarks upon a 22-page report that he described as "... an exhaustive study..." which proved that "...there simply is no empirical evidence that correlates deficits and interest rates."[2] We thoroughly reviewed this report and found it to be neither exhaustive nor conclusive. In modesty the report concludes that "...economic theory yields only an ambiguous answer to the question whether large Federal deficits cause high interest rates..." Most economists would agree that this is an empirical issue. Yet the sole empirical evidence presented to support the claim that there is no statistically significant relationship between deficits and interest rates is two charts, one plotting over a 30-year period the nominal and real or inflation-adjusted Aaa bond rate against the real federal deficit as a percent of Gross National Product (GNP) while the other plots private borrowing as a percent of GNP against government borrowing as a percent of GNP over the same 30-year period. The empirical work does not take into account inflation expectations or monetary policy, two very important additional determinants of interest rates. Further, the report fails to recognize studies which have found a significant relationship between deficits and interest rates.

We would like to conclude our opening statement by responding to the four questions posed by Chairman Jepsen in his letter inviting us to testify today. Our responses are based on our empirical analysis which is presented in our printed testimony and which we request be included in the record of this hearing. We make no claim that this analysis is exhaustive or indisputable proof of a relationship between deficits and interest rates. Modesty in attempting to explain economic relationships is appropriate for all of us.

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[2] U.S. Department of the Treasury, "Government Deficit Spending and its Effects on Prices of Financial Assets," May 1983.

QUESTION #1:

> Are federal budget deficits primarily responsible for current high interest rates or are there other factors, such as monetary policy, which may be more influential?

QUESTION #4:

> If deficits do impact on interest rates, what is the order of magnitude, and is it the current year's deficit or out-year deficits which are most important for long-term loans such as mortgages?

Our analysis suggests that current long term interest rates are determined by three primary factors:

(a) inflation expectations,

(b) monetary policy, and

(c) borrowing to finance the federal deficit.

As for orders of magnitude, of an average Aaa corporate bond rate of just over 12 percent during the third quarter of this year, inflation expectations were contributing about 6 percentage points, monetary policy in relation to the economy's demand for money was adding about 5 percentage points, while the direct pressure on credit markets of financing the increase in the current stock of federal debt was adding about 1 percentage point.

To assess what impact current and expected future deficits are having on current interest rates we need to consider the likely effect of adopting a policy that would eliminate the structural deficit. Despite the fact that the current inflation rate is about 4 percent, investors in credit markets expect inflation to accelerate significantly to 6 to 9 percent over the next 12 to 24 months. This fact is evident from observing the current term structure or yield curve for U.S. Treasury debt instruments. The yield on Treasury securities with a maturity of one year rises abruptly over the yield on 3 and 6 month securities. As maturity extends to 5, 10, and 20 years the yield continues to rise significantly. This is a much steeper increase in yields than would be the case if inflation were not expected to accelerate.

The expectation of accelerating inflation is attributable to the fact that as the economy approaches full-employment the deficit will still be in the $100 to $150 billion range. This represents demand for $100-$150 billion in output for which the economy doesn't have the capacity to produce. The only result can be rising prices. By adopting a policy of deficit reduction, such as our THREE-FOR-ALL Program, inflation expectations could be reduced sufficiently to reduce long-term interest rates by at least 1 full percentage point soon after being implemented. The direct impact of financing the federal debt would continue to put upward pressure on interest rates in the near-term since the deficit remains fairly large until the out-years. Some additional modest reduction in interest rates in the short-run may be possible since the tighter fiscal policy and diminished inflation expectations may permit the FED to adopt a less restrictive stance. It is not inconceivable that long-term rates could fall nearly two percentage points in a relatively short period of time. In the long-run long-term rates should drop by 3 to 4 percentage points.

QUESTION #2:

> Is it the deficit itself or the high level of government spending which actually crowds out in financial markets?

In our opinion crowding out means that resources which would have been devoted to expanding the economy's productive capacity and thereby enhancing the American standard of living are used instead by the government for purposes which either do not improve our productive capacity at all or to less an extent than if the resources had remained in the private sector. Therefore, a given dollar increase in government expenditures crowds out some private investment, regardless of how that expenditure is financed. However, the severity of the crowding out is many times worse if the government expenditure is financed by borrowing as opposed to taxation. One dollar raised through personal income taxes reduces private consumption much more than private saving. Thus, to a large extent taxation replaces private consumption with government consumption. On the other hand, a dollar raised througn government borrowing transfers savings directly into consumption. Although difficult to estimate, I feel comfortable that for each $1 of government borrowing lost $.75 of private investment is converted into consumption, thereby limiting the growth of the American standard of living in future years.

QUESTION #3

> Could we expect the same impact on interest rates from a deficit reduction program which relies primarily on spending cuts and one which relies instead on tax increases?

Although we would favor reducing the federal deficit by reduction in spending programs, we recognize the inability of the administration and the Congress to find such a solution. If deficit reduction were provided by restraining consumption instead of investment through a combination of slower growth in spending and tax increases, both the deficit and real interest rates would be reduced. For example, the proposals for dampening the automatic changes in consumption-oriented spending programs and personal income taxes would be such a program. The "THREE-FOR-ALL" proposal introduced by Republican Senator John Danforth and Democratic Senator David Boren would dampen the impact of the increases in the CPI on the automatic growth of entitlement programs (social security and military and government retirement) and reduce the size of the tax cut on personal income taxes each year. For example, if consumer price inflation is seven percent during 1985, the automatic increase in entitlements would be four percent and the automatic increase in personal income tax brackets would be four percent. This small sacrifice for most Americans would lower the deficit each year until the budget is finally balanced within five years at full employment. Immediately after enactment of such a policy, people would realize the U.S. is reducing the deficit, they would fear less government-driven inflation in future years. They would expect more savings to be available for investment and thus less crowding out. Interest rates would decline fairly rapidly at first because of the reduction in inflationary expectations. More adequate housing would be provided for more households, thus rekindling the dream of home ownership instead of the current trend in the opposite direction fostered by the Administration. Greater investment in structures and equipment would be forthcoming, increasing productivity and providing safer workplaces. People would invest more in education and training to upgrade their skills and their understanding and participation in our democratic society. Moreover, this would occur in every state (see Attachment 1). Thus THREE-FOR-ALL would be fair-for-all and would require only a small sacrifice for most Americans to keep the recovery going and America growing. This would be sound economic policy as well as good politics. I would also add that politically the best time to institute a deficit reduction program such as THREE-FOR-ALL is during a recovery when incomes are growing rapidly and inflation is relatively low as is anticipated for the remainder of this year and most of 1984. The small sacrifice needed would be less noticeable since, to a large extent, it would be offset by the growth in incomes.

FEDERAL DEFICITS AND INTEREST RATES

The issue before us today is whether or not federal deficits have made any statistically significant contribution to the sharp rise in both nominal and real long-term interest rates that has occurred in recent years. As is indicated by the Treasury study, casual observation of the real or inflation-adjusted deficit with the nominal and/or real Aaa bond rate suggests that, if anything, the correlation is negative; that is, higher deficits reduce interest rates. However, to accurately assess the impact of deficits on interest rates requires a more sophisticated analysis that takes into account all factors which influence the level of interest rates. As is described in the Appendix, we employ multiple regression analysis to explain movements in the Aaa corporate bond rate over the period from 1953:3 to 1983:2.[4/] The equation we have specified is the basic long-term interest rate equation used in large-scale econometric models for nearly 10 years. Contrary to the assertion of the Treasury study, this analysis reveals a statistically significant positive relationship between an increase in privately-held federal debt and the Aaa corporate bond rate.

[4/] Our empirical analysis is an extension of the work by Martin S. Feldstein and Otto Eckstein, "The Fundamental Determinants of the Interest Rates," The Review of Economics and Statistics. November 1970, pp 363-375.

Economic theory provides two distinct but equivalent alternatives for analyzing the determination of interest rates, the Keynesian liquidity preference theory and loanable funds theory.[5] The liquidity preference theory analyzes the relationship between the quantity of money in the economy, the level of income, the long-term or bond rate of interest, and expectations of future changes in the bond rate of interest. Loanable funds theory analyzes the interest rate as the price which equilibriates the supply of and demand for loanable funds.

Fundamentally, the supply of loanable funds depends upon the level of domestic savings not directly invested, inflows of savings from the rest of the world, and injections of new money into the economy by the monetary authorities. Domestic savings depend upon the level of income and interest rates, although there is substantial evidence that increases in interest rates alone do not provide much in the way of increased savings. Domestic savings can be augmented by inflows of foreign capital which depends upon the level of interest rates in this country relative to levels in other countries. The monetary authorities inject new money into the economy primarily by making net purchases of federal government debt instruments, i.e., monetizing the debt.

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[5] We are referring here to the level of all interest rates rather than the term structure of interest rates. Further, while we recognize that there are numerous interest rates, we will use the expression "the interest rate" to refer to the overall level of interest rates.

Demands for loanable funds are made by domestic households and businesses, the federal and state and local governments, and by the rest of the world. The private sector's demand for loanable funds is inversely related to the interest rate. In contrast, credit demanded by governments to finance budget deficits is insensitive to changes in interest rates, i.e., interest inelastic. As depicted in Diagram 1, the supply of and demand for loanable funds are brought into equilibrium by the price which clears the market, in this case the interest rate. Economic theory concludes that this equilibrium nominal interest rate will equal the real rate of interest plus the expected rate of inflation since investors attempt to protect themselves against the erosion of the purchasing power of the funds they lend.[6/]

Clearly, holding everything else constant, an increase in federal government demand for loanable funds will raise interest rates and "crowd out" private demand for loanable funds unless the supply of loanable funds is perfectly elastic with respect to the interest rate. In fact, the supply of loanable funds is believed to be relatively unresponsive to changes in the interest rate (interest inelastic) so an increase in government demand results in a relatively large increase in the interest rate and crowds out private demand. As suggested by the Economic Report of the President, a $1 increase in government demand for loanable funds reduces funds available for private

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[6/] See I. Fisher, The Theory of Interest, (New York: Macmillan and Company, 1930).

credit needs by \$.50 to \$.75.[7] As depicted in Diagram 1, an increase in government demand for loanable funds causes the demand curve to shift from D_1 to D_2. Given the fact that supply is relatively unresponsive to changes in the interest rate (inelastic), the interest rate rises from R_1 to R_2 while the quantity of loanable funds increases by AC. Since the government borrows an amount of loanable funds equal to BC, an amount of private credit demand equal to AB is "crowded out."

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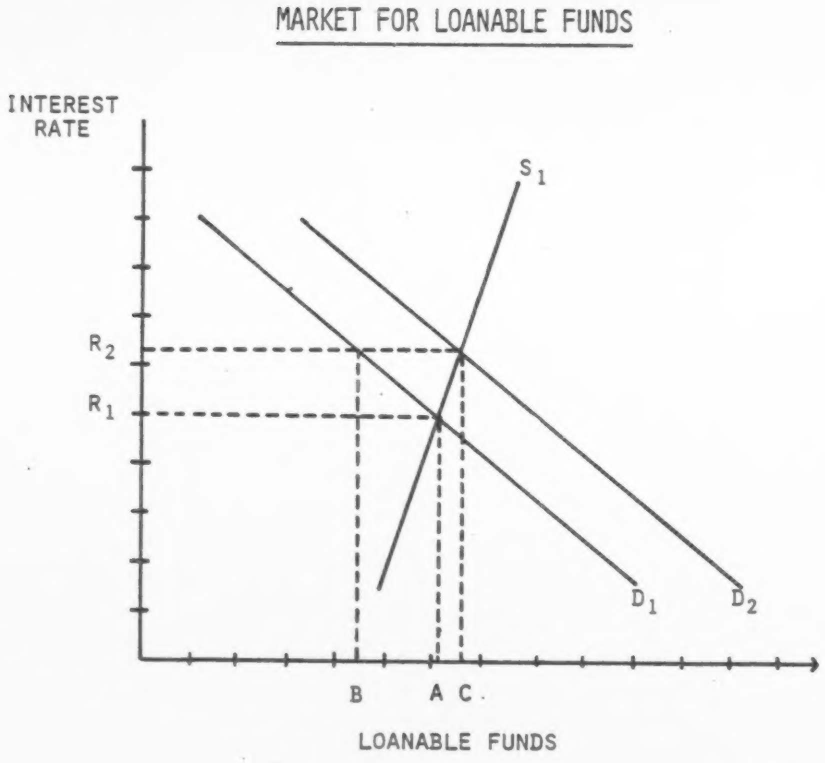
[7] See Economic Report of the President, February 1983, p. 86.

DIAGRAM 1


MARKET FOR LOANABLE FUNDS
INTEREST RATE
S_1
R_2
R_1
D_1
D_2
B
A
C
LOANABLE FUNDS

This basic loanable funds theory explains why countries such as West Germany and Japan have larger deficits as a percent of GNP than the U.S. yet still have lower interest rates. The reason for this phenomenon is that both of those countries have substantially higher rates of savings than the U.S. Thus, while in 1982 the U.S. deficit represented 106.1 percent of personal savings, in West Germany the central government deficit represented 37.8 percent of personal saving while in Japan the figure was 18.3 percent.

Table 1

Relationship Between Central Government Demand for Loanable Funds and Real Interest Rates in Major Industrial Countries

Country	1982 Deficit* ($US Billions)	% of Personal** Savings in 1982	Real Long-term Interest Rates in Private Sector
United States	131	106.1	8 to 10
United Kingdom	15.6	62.5	5
West Germany	23.2	37.8	3.0
France	11.6	19.0	3.0
Japan	31.8	18.3	2 to 3

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*Federal deficit for U.S. (on and off budget), general government current account deficits for all other countries.

**1982 personal savings figures for all countries other than the U.S. supplied by Wharton Econometric Forecasting Associates.

Note: Although business saving is not included, essentially the same relationship would hold if it were.

The key to empirically isolating the impact of federal deficits on interest rates is to hold other things constant; that is, account for the other major determinants of interest rates such as monetary policy, private demand for loanable funds, and expected inflation. Based on our own empirical analysis, Table 2 presents a decomposition of the Aaa corporate bond rate over the twelve-year period from 1971 to 1983. This decomposition presents the portion of the interest rate which is attributable to the following four fundamental determinants of long-term interest rates:

(1) Growth in the Monetary Base Relative to the Growth in the Private Demand for Money

The FED controls the monetary base, which equals currency held by the public plus nonborrowed reserves of the commercial banking system. The FED can increase the monetary base through net purchases of federal debt instruments. Private demand for money increases with the growth of GNP. An increase in the monetary base relative to GNP acts to reduce the interest rate while a decrease in the monetary base relative to GNP acts to increase the interest rate.

(2) Increases in the Stock of Privately Held Federal Debt

Increases in federal debt must be absorbed into the portfolios of private investors and so compete directly with corporate bonds and mortgages. If the increase in federal debt is large relative to the supply of loanable funds, there will be upward pressure on interest rates.

(3) Expected Inflation

An increase in expected inflation will cause the interest rate to rise as investors attempt to protect their funds from the erosion of purchasing power associated with inflation.

(4) Market Expectations

If investors expect interest rates to rise in the future, current interest rates will rise. Conversely, if interest rates are expected to fall, current rates will fall.

Table 2

Direct Impact of Factors Affecting the Aaa Corporate Bond Rate

					Total	
Year	Monetary Policy	Federal Debt	Inflation Expectations	Market Expectations	Fitted	Actual
1970	3.68	.18	2.97	.03	6.86	8.04
1971	3.71	.07	3.19	-.02	6.95	7.39
1972	3.87	.04	3.15	-.01	7.05	7.21
1973	4.09	.06	3.20	.01	7.36	7.44
1974	4.09	.03	4.33	.04	8.49	8.57
1975	4.14	.12	4.76	-.01	9.01	8.83
1976	4.18	.31	4.39	-.12	8.76	8.43
1977	4.40	.37	3.78	-.13	8.42	8.02
1978	4.57	.40	4.00	.02	8.99	8.73
1979	4.83	.43	4.55	.02	9.83	9.63
1980	5.11	.54	6.13	.06	11.85	11.94
1981	5.53	.62	7.68	.09	13.92	14.17
1982	5.36	.77	7.27	-.03	13.37	13.79
83:1	5.17	.94	5.68	-.22	11.57	11.84
83:2	5.18	1.00	5.34	.00	11.51	11.57
Forecast						
83:3	5.25	1.01	5.90	-.03	12.13	--
83:4	5.26	1.03	5.92	.07	12.28	--
84:1	5.28	1.06	5.89	.02	12.25	--
84:2	5.29	1.10	5.90	-.01	12.28	--
84:3	5.31	1.10	5.89	.01	12.31	--
84:4	5.32	1.11	5.91	.00	12.34	--
85:1	5.33	1.15	5.92	.01	12.41	--
85:2	5.36	1.19	5.94	.02	12.51	--
85:3	5.39	1.20	5.96	.02	12.57	--
85:4	5.43	1.21	6.00	.02	12.66	--

Source: Developed by the NATIONAL ASSOCIATION OF REALTORS®.

From Table 2 we can see that in the early 1970s the increase in privately held federal debt due to federal deficits was absorbed into private portfolios with little if any upward pressure on interest rates. The real rate of interest, which equals all components except expected inflation, was about 4 percent while expected inflation added 3 to 4 percentage points.

Beginning in 1975 the size of the federal deficits increased relative to the pool of savings and private credit demands, creating upward pressure on long-term interest rates. At the same time the economy's demand for money increased relative to the monetary base. By 1978 the real rate rose to around 5 percent while expected inflation was adding 4.5 to 5 percentage points.

Deficits moderated somewhat in the late 1970s, so that the percentage points attributable to the federal debt plateaued at about 0.40. The real rate rose to about 5.25 percent as the demand for money continued to increase relative to the monetary base. By the end of the decade inflation was accelerating, with inflation expectations adding 5 percentage points.

As we entered the 1980s, interest rates were pushed up in all directions. Massive federal deficits could not be absorbed without substantial increases in real interest rates. Because of the need to offset the inflationary potential of loose fiscal policy and the sharp increase in oil prices, the FED adopted restrictive growth targets for the major monetary aggregates which substantially reduced the monetary base relative to the demand for money, also boosting real rates. Inflation accelerated well into the double-digit range, with inflation expectations adding nearly 8 percentage points in 1981.

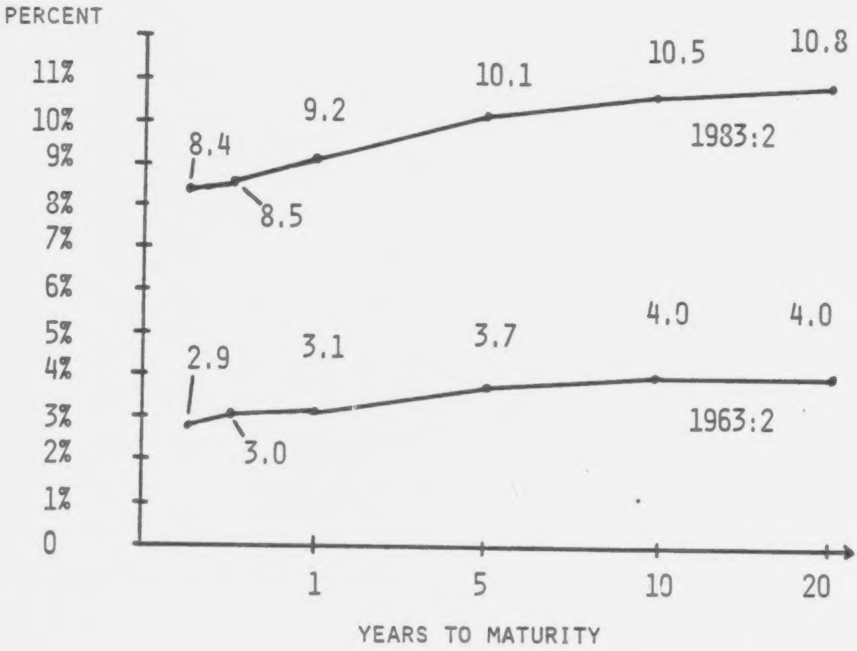
In late 1982 and through the second quarter of 1983 the FED increased the monetary base relative to the demand for money. However, by the second quarter of 1983 the burden of financing the rapidly growing federal debt was adding 1 full percentage point to the real rate. Thus the real rate remains at just over 6 percent, virtually the same as in 1981. A substantial reduction in inflation did result in about a 2 percentage point decline in the nominal rate from its peak in 1981.

It is evident from this analysis why the consensus forecast of financial economists is for interest rates to remain high and perhaps rise somewhat during 1984 and 1985 unless some action is taken to substantially reduce the federal deficit. The rapidly growing federal debt will put increasing pressure on the real rate of interest, particularly as the recovery proceeds and private credit demand increases. The FED appears determined to hold onto the hard won reduction in inflation and so is unlikely to use its policy power to substantially lower the real rate by increasing the monetary base. Even if attempted, it would likely be futile since the more rapid growth of the monetary base would serve to heighten inflation expectations. Finally, with the prospect of a $100 to $150 billion deficit when the economy is at full employment, the so-called structural deficit, the only likely course for inflation expectations is to remain at current levels (6-9 percent over the next several years) or even rise slightly, despite the low level of current inflation.

The market's expectation of accelerating inflation in 1984 and 1985 is evident from the shape of the yield curve for U.S. Treasury securities during the second quarter of 1983, as shown in Diagram 2. While debt instruments with maturities of 3 and 6 months were yielding about 8.5 percent, the yield on securities with maturities of a year or more rose abruptly. Note the contrast between the current yield curve and the yield curve for the second quarter of 1963, when inflation was not expected to accelerate. In that case the increase in yields as the term to maturity increases is both smooth and relatively modest.

DIAGRAM 2

SELECTED YIELD CURVES FOR U.S. TREASURY SECURITIES



The analysis also suggests that credible steps taken now to reduce the deficit, in particular to eliminate the structural deficit, could in a very short time reduce long-term interest rates by at least one percentage point and perhaps by as much as 2 to 3 percentage points. Elimination of the structural deficit would likely reduce inflation expectations sufficiently to reduce long-term rates by at least one percentage point in just 6 to 9 months. The reduction in inflation expectations would in turn permit the FED to adopt a slightly more accomodative stance. Over the long run long-term rates would continue to edge down as the economy grows and the much slower growing federal debt is absorbed into private portfolios.

Table 3

Likely Impact of THREE-FOR-ALL Program on Aaa Corporate Bond Rate*

Year	Monetary Policy		Federal Debt		Inflation Expectations		Market Expectations		Total Difference
	Without THREE FOR ALL	With THREE FOR ALL	Without THREE FOR ALL	With THREE FOR ALL	Without THREE FOR ALL	With THREE FOR ALL	Without THREE FOR ALL	With THREE FOR ALL	
83:3	5.25	5.25	1.01	1.01	5.90	5.90	-.03	-.03	0.0
83:4	5.26	5.25	1.03	1.02	5.92	5.42	-.02	-.02	-.61
84:1	5.28	5.20	1.06	1.05	5.89	4.92	.02	-.03	-1.11
84:2	5.29	5.16	1.10	1.04	5.90	4.88	-.01	-.04	-1.24
84:3	5.31	5.12	1.10	1.05	5.89	4.81	.01	-.01	-1.31
84:4	5.32	5.08	1.11	1.05	5.91	4.80	.00	.00	-1.41
85:1	5.33	5.06	1.15	1.04	5.92	4.78	.01	.00	-1.53
85:2	5.36	5.04	1.19	1.03	5.94	4.76	.02	.00	-1.68
85:3	5.39	5.02	1.20	1.02	5.96	4.74	.02	.00	-1.79
85:4	5.43	5.00	1.21	1.01	6.00	4.72	.02	.00	-1.93

*Table assumes THREE-FOR-ALL Program is implemented for FY84.

These results also explain why interest rates fell from 1974 to 1977 despite the fact that the federal deficit rose substantially over this period. As seen in Table 2 the primary reason was a steep decline in inflation expectations. In the wake of the recession from November 1973 to February 1975, the annualized percent change in the GNP deflator fell from a peak of 12.1 percent during the fourth quarter of 1974 to 3.6 percent during the first quarter of 1976. Thus, while the sharp increase in federal debt during this period was pushing interest rates up, this effect was more than offset by the decline in inflation expectations. Moreover, during the 1973 to 1977 period, the FED annually purchased on average 12.6 percent of the federal debt issued. In contrast, from 1980 to 1982 the FED purchased just 4.8 percent of the newly issued federal debt. This much more accomodative stance also helped bring interest rates down over the 1974 to 1977 period.

THE THREE-FOR-ALL PROGRAM

The THREE-FOR-ALL Program consists of specific proposals for changing federal spending and taxation policies which will substantially reduce the federal deficit towards balance and thereby reduce government "crowding out" and dampen "inflation expectations." The resulting decline in interest rates will lead to increased investments in people, structures and equipment, and research and development, and thus the American standard of living. The Program calls for modifications in the indexing of both federal entitlement programs and federal personal income tax brackets. These proposals will reduce the federal deficit by slowing the growth of spending and increasing tax revenues. By slowing the growth of entitlements, which are almost totally consumed, and resulting in personal income taxes being higher than under current law, the intent of this program is to reduce the deficit by reducing consumption. The decline in government borrowing should be much greater than the reduction in savings, thereby reducing interest rates. The decline in interest rates will induce further reductions in the deficit by promoting more rapid economic growth and by reducing the interest cost on the existing federal debt.

Slowdown of Automatic Spending Increases

In a response to the persistent inflation of the past ten to fifteen years, the federal government has indexed several of its entitlement programs. The intent of indexing is to protect benefit recipients from a loss of purchasing power due to inflation. In terms of dollar outlays, the largest of the indexed entitlement programs are Social Security (OASDI) followed by Civil Service Retirement and Military Retirement. However, there are some ninety different federal programs with indexed provisions. The Congressional Budget Office (CBO) estimates that a one percentage point increase in inflation automatically triggers $2 billion of additional federal spending each year.

One serious flaw with these indexing provisions is that the measure of inflation most frequently used is the Consumer Price Index (CPI). Economists both in the government and in the private sector have recognized for sometime that the CPI overstates inflation. Over the past ten years the CPI has risen 22 percentage points more than the Implicit Price Deflator for Personal Consumption Expenditures, a more reliable indicator of the loss in consumer purchasing power due to inflation. Even taking into consideration the changes to the housing component of the CPI introduced in January of 1983, the CPI will continue to overstate inflation since it is based on a fixed market basket of goods (fixed-weight index) and does not account for the ability of consumers to substitute less expensive goods and services for more expensive ones in their own market basket.

In addition to being a major contributor to the staggering growth in federal spending over this period, there is the equally serious issue of fairness. Most American taxpayers have not been able to fully protect themselves from inflation and so have suffered a decline in purchasing power due to inflation. In contrast, the recipients of federal entitlement programs have not only been fully protected against inflation, they have actually enjoyed a substantial windfall and unintended gain in purchasing power.

The spending side component of the Three-For-All Program is to modify the way in which these federal entitlement programs are indexed over the period from 1984-1988. Instead of benefits being indexed to the full change in the

CPI, the increase in benefits would be indexed to the change in the CPI minus three percentage points. For example, if the CPI rose 7 percent, benefits would increase 4 percent.

Modifying indexing in this way for the 1984 to 1988 period will correct for some of the gain in purchasing power realized by program beneficiaries over the past ten years and will also contribute to the reduction in the federal deficit, particularly in the out years.

Limitation on Indexing of Personal Income Taxes

One of the provisions of the Economic Recovery Tax Act of 1981 is that beginning in 1985 personal income tax brackets, exemptions, and the standard deduction (zero bracket amount) will be indexed to the CPI. For example, in 1984, married couples filing a joint federal tax return with taxable income from $16,000 to $20,200 will be in the 18 percent tax bracket. If the CPI rises 5 percent for the year ending October 1, 1984, the 18 percent tax bracket for 1985 will include incomes from $16,800 to $21,200. Exemptions would increase from $1,000 to $1,050 while the standard deduction or zero bracket amount would rise from $3,400 to $3,570. The intent of tax indexing is to prevent so-called "bracket creep" whereby inflation pushes individuals into higher tax brackets even though their real or inflation-adjusted income has not increased. Rapid bracket creep during the 1970s resulted in federal revenues representing an increasing share of GNP without any explicit action by the federal government to increase tax rates.

The revenue side component of the Three-For-All Program would limit the indexing of tax brackets to the change in the CPI minus three percentage points from 1985 through 1988. The rationale is the same as for limiting the indexing of the entitlement programs. Since the CPI, even with the improvements introduced in January 1983, overstates the loss in purchasing power due to inflation, indexing tax brackets to the full change in the CPI would cause real or inflation-adjusted tax burdens to fall over time. While this may be a good long-term goal, the immediate pressing need is to reduce the deficit. The Three-For-All modification of tax indexing will help do that by raising additional tax revenues than is projected under current law. The resulting improvement in revenues would be about the same as for spending.

By 1988 revenues are $74 billion higher due directly to the change in the indexing provision and to higher economic growth. Expenditures are reduced by $103 billion due to a $40 billion reduction in transfer payments and a $63 billion reduction in net interest. Net interest declines since by 1988 the stock of outstanding federal debt is $381 billion less and because interest rates are substantially lower (see Table 4).

As indicated in Table 5, by 1988 real GNP should be 3.9 percent higher, representing an increase of $1,500 in income per household. Total employment should be increased by 1.8 million full-time jobs. Mortgage rates should be 3.2 percentage points lower, resulting in 1.1 million additional existing home sales and 650,000 additional housing starts. Investment in nonresidential plant and equipment should be 4.4 percent higher by 1988 than would be the case if no deficit reduction program is implemented.

Table 4

IMPACT OF THREE-FOR-ALL PROGRAM on FEDERAL REVENUES, EXPEDITURES, and DEFICITS

(Billion of Dollars)

	1984	1985	1986	1987	1988
Expected Deficit[1]	-$206	-$198	-$202	-$187	-$175
Impact on:					
Revenues	3	4	22	46	74
Direct	0	1	8	15	26
Induced	3	3	14	31	48
Expenditures	-15	-18	-34	-62	-103
Transfer Payments	-8	-10	-16	-23	-40
Direct	-8	-9	-12	-17	-33
Induced	0	-1	-4	-6	-7
Net Interest	-7	-8	-18	-39	-63
Deficit	-18	-22	-56	-108	-177
Resulting Deficit	-188	-176	-146	-79	2

[1] CBO Baseline Budget (August 1983).

Table 5

MACROECONOMIC IMPACTS OF THREE FOR ALL PROGRAM

	1984	1985	1986	1987	1988	1984-1988
GNP ($83 billion)	5.2	30.2	74.3	117.0	148.6	375.3
Percent (%)	0.2	0.9	2.1	3.2	3.9	1.7
Residential Investment						
($83 billion)	2.5	11.0	25.7	54.1	68.7	162.0
Percent (%)	1.6	6.7	14.3	26.4	30.5	17.4
Nonresidential Investment						
($83 billion)	0.3	2.9	9.8	22.9	39.1	75.0
Percent (%)	0.1	0.7	2.2	4.6	7.1	3.1
Structures ($83 billion)	0.2	1.7	5.3	11.8	20.1	39.1
Percent (%)	0.1	1.1	3.0	6.0	9.1	4.4
Equipment ($83 billion)	0.1	1.2	4.5	11.1	19.0	35.9
Percent (%)	0.05	0.5	1.6	3.7	5.7	2.6
Income Per Household ($83)	40	220	570	1150	1500	3480
Percent (%)	0.1	0.5	1.1	2.1	2.5	1.4
Total Private Savings						
($83 billion)	4.6	10.5	16.9	17.7	21.5	71.2
Percent (%)	0.7	1.5	2.2	2.3	2.5	1.9
Employment (millions of jobs)	0.1	0.3	0.9	1.5	1.8	4.6 (man-years)
Mortgage Interest Rates (percentage points)	-0.5	-1.0	-1.5	-2.3	-3.2	avg. -1.7
New Home Starts (units)	75,000	240,000	500,000	550,000	650,000	2,015,000
Existing Home Sales (units)	165,000	500,000	1,000,000	1,000,000	1,100,000	3,765,000
Domestic Car Sales (units)	100,000	300,000	700,000	1,100,000	1,500,000	3,700,000

CONCLUSION

The Secretary's argument is not a trivial or obscure matter. It concerns a core issue of the nation's Economic policy. Its practical significance, if believed or if accepted as the basis for action and for inaction, can have major perverse impacts on our economy's overall performance. That is why we addressed the Committee on the matter. That is why we would urge the Committee not to let this statement from the top economic spokesman for the Executive Branch stand unchallenged and thus tacitly accepted as the views of both the Executive and Legislative Branches. We urge the Committee, after it has completed an adequate review of the issue, to express its non-agreement with the Secretary's argument. While this may not eliminate all of the mischief from the Secretary's statement it is the best way we can suggest for the Committee to carry out its important role in this extraordinary age of economic dialogue and sophistry.

APPENDIX

Estimation of the Relationship Between Deficits and Interest Rates

Presented below are the results of ordinary least squares estimation of the determinants of the Aaa corporate bond rate:

$$
\begin{aligned}
RAAA_t = \; & \underset{(2.70)}{-26.108} - \underset{(2.24)}{8.116} \ln (RMBPC_t) \\
& + \underset{(4.47)}{7.124} \ln (RGNPPC_t) \\
& + \underset{(1.97)}{1.435} \ln (RPHFDPC_t) \\
& + \underset{(6.16)}{0.761} \, PCEXP_t \\
& + \underset{(1.79)}{0.118} \, (RAAA_{t-1} - RAAA_{t-2})
\end{aligned}
$$

$\bar{R}^2 = .9885$

Darbin-Watson statistic = 1.9451

Standard Error of the Regression = 0.33

$\hat{\rho} = .902538$

Sample period: 1953:3 to 1983:2

where:

RAAA = nominal Aaa corporate bond rate
RMBPC = real monetary base per capita
RGNPPC = real GNP per capita
RPHFDPC = real privately held federal debt per capita
PCEXP = expected annual rate of inflation as measured by the implicit price deflator for personal consumption expenditures (PC). Expected inflation is estimated by the following adaptive expectations model:

$$
PCEXP_t = (1-.79)^2(100)\left(\frac{PC_t}{PC_{t-1}}\right)^4 + (.79)(2)(PCEXP_{t-1}) - (.79)^2(PCEXP_{t-2})
$$

Autocorrelation was corrected using the Cochrane-Orcutt procedure. The figures in parenthesis under the estimated coefficients are t-ratios, indicating that all estimated coefficients are statistically different from zero at the 95 percent confidence level.

The decomposition of the interest rate as presented in Tables 2 and 3 is based on the following:

Liquidity relative to private demand for money $= -26.108 - 8.116 \ln(RMBPC_t)$

$+ 7.124 \ln(RGNPPC_t)$

$+ 1.435 \ln(\text{minimum } RPHFDPC)$

Federal Debt $= 1.435 \ln(RPHFDPC_t)$

$- 1.435 \ln(\text{minimum } RPHFDPC)$

Inflation expectations $= 0.761 (PCEXP_t)$

Market expectations $= 0.118 (RAAA_{t-1} - RAAA_{t-2})$

ATTACHMENT 1

Impact of the THREE-FOR-ALL Program When Fully Implemented by State

State	Increase in Permanent Jobs	Increase in Income per Household (annual)	Increase in Existing Home Sales (annual)	Increase in New Home Starts (annual)
Alabama	42,600	1,300	15,700	9,700
Alaska	6,300	2,300	4,400	4,000
Arizona	20,600	1,500	15,000	18,200
Arkansas	20,400	1,300	17,300	5,900
California	201,500	1,900	93,200	48,100
Colorado	23,000	1,800	18,700	19,000
Connecticut	36,400	2,100	8,000	6,800
Delaware	4,900	1,900	4,100	1,600
Dist. of Columbia	3,200	2,200	3,500	100
Florida	65,400	1,600	44,500	56,800
Georgia	44,500	1,400	14,500	35,700
Hawaii	4,800	1,800	2,500	1,900
Idaho	8,800	1,400	4,500	2,000
Illinois	89,500	1,900	52,900	9,000
Indiana	65,400	1,600	21,100	8,700
Iowa	21,000	1,600	17,000	5,700
Kansas	22,100	1,800	17,300	7,300
Kentucky	30,800	1,400	20,000	9,000
Louisiana	34,000	1,600	30,600	19,800
Maine	9,400	1,400	5,700	4,100
Maryland	30,500	1,800	29,300	15,300
Massachusetts	42,800	1,800	18,900	10,100
Michigan	119,300	1,700	59,600	9,200
Minnesota	35,600	1,700	29,000	13,800
Mississippi	23,300	1,200	14,400	9,100
Missouri	39,600	1,600	22,600	10,200
Montana	6,400	1,600	4,700	900
Nebraska	11,100	1,600	12,200	4,400
Nevada	4,500	1,800	3,500	4,500
New Hampshire	8,700	1,600	2,000	4,600
New Jersey	51,700	1,900	32,600	15,200
New Mexico	9,700	1,400	8,100	5,200
New York	102,100	1,900	48,500	14,700
North Carolina	69,000	1,400	39,300	38,300
North Dakota	3,900	1,600	3,800	2,900
Ohio	125,600	1,700	50,200	12,100
Oklahoma	22,600	1,700	26,100	25,800
Oregon	34,400	1,600	12,300	5,000
Pennsylvania	108,800	1,600	52,300	15,800
Rhode Island	7,100	1,700	2,400	1,500
South Carolina	33,800	1,300	16,000	12,100
South Dakota	3,500	1,300	6,000	2,200
Tennessee	44,700	1,400	25,500	12,300
Texas	130,100	1,800	66,600	77,700
Utah	11,900	1,300	6,000	4,300
Vermont	4,600	1,400	2,100	3,600
Virginia	47,900	1,700	45,400	22,300
Washington	48,400	1,800	17,000	10,800
West Virginia	13,900	1,400	11,600	3,000
Wisconsin	44,500	1,600	18,900	7,600
Wyoming	5,500	1,800	2,500	2,200
U.S.	2,000,000	1,500	1,100,000	650,000

Source: Model developed by the NATIONAL ASSOCIATION OF REALTORS® and Data Resources, Inc.
Assumptions and simulations by Dr. Jack Carlson, Hugh Graham and Dick Peach.

ATTACHMENT 2

NATIONAL ASSOCIATION OF REALTORS®

JACK CARLSON
EXECUTIVE VICE PRESIDENT

777 14TH STREET, N. W.
WASHINGTON, D. C. 20005
TELEPHONE 202 383-1003

September 15, 1983

The Honorable Roger W. Jepsen
Chairman
Joint Economic Committee
Dirksen G-01
Washington, D.C. 20510

The Honorable Lee H. Hamilton
Vice Chairman
Joint Economic Committee
Dirksen G-01
Washington, D.C. 20510

Dear Chairman Jepsen and Vice Chairman Hamilton:

We request that the Joint Economic Committee conduct a review and hearings on Secretary of the Treasury Donald T. Regan's study, "Government Deficit Spending And Its Effects On Prices Of Financial Assets." From this study the Treasury Secretary claims:

> "We at Treasury have done an exhaustive study of the subject and there is simply no empirical evidence that correlates deficits and interest rates." [Remarks before the Chemical Manufacturers Association September 8, 1983.]

The Secretary thus implies that there is less or no need to do anything about the deficits this year or next to bring real interest rates down. His comments are convenient for those candidates, including the President, who may not try to lower federal deficits until after the November 6, 1984 election, if then.

Secretary Regan's assertions about the economy are at odds with statements of other Secretaries of the Treasury [Blumenthal, Connally, Dillon, Fowler, and Simon] and statements by George Shultz, currently Secretary of State.

If Secretary Regan were not the President's primary economic policy spokesman, his study and statements could be ignored. But as the President's primary economic spokesman he can cause harm to the entire economy if his advice is heeded.

After reviewing the statement and the study we are convinced that the Treasury study and the Secretary's interpretation are defective, incomplete and the conclusions are unsubstantiated. Policy must not be based on such a weak study. If so, we can see a lower standard of living for the average American, less food, clothing and shelter, and less investment and foreign trade.

Therefore, we urge the Joint Economic Committee to conduct an unbiased, bipartisan public review of the Study and the Secretary's interpretation as soon as possible.

We would recommend that the Joint Economic Committee invite scholars who have participated in economic policy formulation. This should include chairmen of the President's Council of Economic Advisers: Martin Feldstein, Murray Weidenbaum, Charles Schultze, Alan Greenspan, Herbert Stein, Paul McCracken, Gardner Ackley, and Walter Heller. Secretary Regan should be invited to defend his study and interpretation. Former Secretaries of the Treasury should be invited such as William Simon, Michael Blumenthal, George Shultz, John Connally, Douglas Dillon and Henry Fowler.

If the Committee would wish to invite other participants, we would be pleased to testify.

Sincerely,

Jack Carlson

Jack Carlson

Senator JEPSEN. Thank you, Mr. Carlson.

Mr. Johnson, in the latest economic forecast, Walter Heller and George Perry, who are two well-known Democratic economists, say that they disagree with those who foresee the megadeficits bringing a recovery to an early end. Given the big margin of unused potential in the economy, the Federal Reserve can for some time shield the economy from rising interest rates even in the face of these deficits.

That was the gist of their statement. Would you comment on that, please?

Mr. JOHNSON. Yes. Well, first, I think that their statement relates back to one of the points I made earlier in my testimony about the fact that I think the model which they looked at, assuming a growing economy, is propelled by an expanded deficit and, in their opinion, interest rates are not inconsistent with rapidly rising growth in the economy.

So that, even though interest rates might rise in their particular framework, it would be a result of demand for goods and services rather than a lack thereof and certainly I would say there would be a shift from interest-sensitive types of goods and services toward less interest-sensitive goods and services, but it need not abort economic recovery.

Of course, a lot of this would depend on accommodative monetary policy and I would have to be a little bit careful or skeptical about willing to increase money supply growth too rapidly, given the skittishness of the markets with respect to inflationary expectations. But certainly this is one finding and it is not inconsistent with the current situation which shows a very strong recovery in the face of $200 billion estimated deficits and, as a matter of fact, this recovery so far has actually been led by interest-sensitive types of industries, such as housing and automobiles. And if you look at the third quarter, preliminary GNP numbers from yesterday, they imply that a large component of the 7.9-percent real growth rate that was reported out for the third quarter was a function of rapid capital spending. Therefore, inventories and capital spending led real growth in the third quarter and prior to that, this recovery has been led by the traditional sectors, such as housing and automobiles.

Mr. CARLSON. I would agree with the Heller-Perry forecast that the economy is strong at the present time. It is slowing down. The slowdown may not be as rapid as some people indicated earlier. I would expect that the fourth quarter of this year inflation will be growing close to 5 or 6 percent, but I would expect the high real interest rates that exist now would tend to wear down this recovery and as we go through the year it will be 5, 4, 3, or even 2 percent, perhaps that kind of trend down, not to the point that it would not reduce unemployment at the time the Congress and the President are running for reelection, and that is because of the high real interest rates that exist at the present time. And let me just take note that in the case of long-lived assets, such as mortgages on homes themselves, that the real interest rate—the interest rate above the inflation rate for the postwar period has averaged 3.75 percent and even if you say the underlying inflation rate is higher than the actual inflation rate—say it is 5 percent—and mortgages are 13, you have 8 percent. That is more than twice the normal real interest rate. We have never had this in the history of the United States, such high real interest rates, for so long, and I think that the latter part of the recovery is driven by the interest-sensitive sectors of the economy, expansion of new plant and equipment, building up of inventories that are now building up, I am afraid a little bit rapidly, which will create a little bit of an overhang and will affect the housing.

To give you some ideas so we are not just talking in hypotheticals, we have done some empirical analysis in my prepared statement. If, in fact, you addressed the deficit problem and did it before this Congress leaves for this year, you can see by election time next year that you can have the interest rate down by 1.5 percentage points. Most of that is from reduction of inflationary expectations and some from more accommodative monetary policy because of the reduction, and the proposed reduction of the deficit, and directly from the crowding-out that occurs currently by the deficit.

So I would have to agree that the economy can be run on a consumption orientation but it is going to run into capacity limitations. The high real interest rates now will cause us to slow down and it could be greatly improved with proposals to bring down that deficit.

Senator JEPSEN. If we could examine just for a moment, for the sake of conversation during the rest of this hearing, the deficit, spending, monetary policy, fiscal policy, sustainable recovery, and all of these terms we are hearing a lot about: Based on the public debate in the media essentially this last year, one could come to the conclusion that deficits are the only thing that affects interest rates, as we move into 1984. I suspect, because most everything else is in place and moving in the right direction, we are going to hear more of that unless we analyze and communicate the total story.

At one time, people will say, well, fiscal policy and monetary policy and regulatory policy—all of these things would have an effect on interest rates. We know that the deficits themselves are psychologically devastating. I would think there is a great psychological impact on interest rates.

We seem to forget that the factors making up the formulas which in turn are put in the computers then project and spit out the deficits—those same factors when the economy is truly on an upswing and sustainable recovery can have an equally effective positive impact and deficit projections can change somewhat dramatically. If you have a decrease in unemployment by 1 percentage point, depending on who you talk to, they will say that is $27 or $30 billion off the deficit. One percent increase in the growth of gross national product, depending on who you talk to, they will say that is $20 billion off the deficit. One percent decline in interest rates, depending on who you talk to, will be $15 billion off the deficit.

Now you put in that mix on the basis of our economy and what has been happening with the reporters of the last three quarters of this year, particularly the last two, and we are going to see a somewhat reduced deficit—as I think you pointed out, Mr. Johnson. In fact, it is going to be rather dramatic over the last 60 days or so.

I related yesterday, that when I was in Iowa in August, it looked like things improved when Congress was out of session, and there would be some who think that Congress ought to stay out of session and maybe things would get better.

In any event, I would like to have both of you comment on what factors determine interest rates? Let us make a laundry list.

Mr. **Johnson**. Well, first of all, I do not think economists really understand all of the factors that affect interest rates and I think that probably that is one of the reasons for so much confusion over the deficit-interest rate issue. As a matter of fact, we have observed over time a situation where interest rates are falling at the same time that deficits are rising. Now to some people that is counterintuitive, but I would suggest that basically comes from a lack of understanding about all the variables that indeed do affect real interest rates.

You have a chart up there [indicating] that I think is kind of interesting which shows that if you look at the red line on the left, it shows rising expected deficits and falling interest rates. I take it that this red line is the trend of DRI's estimate of the 1985 deficits?

Senator **Jepsen**. The red line in that chart shows deficits from 1980 through a forecast of 1985. The dark green line shows interest rates on 5-year Treasury notes, and the light green line shows Treasury note interest rates adjusted for inflation. That is the real interest rates.

Senator **Abdnor**. Mr. Johnson, did you say economists or Congressmen? Who did you say?

Mr. **Johnson**. Economists, or anyone, for that matter.

Mr. **Carlson**. Senator, I would not be quite as humble as he is. I do think there is some empirical analysis to be a little more confident that we know some of the factors and how they operate.

Senator **Abdnor**. I hope they do. In Congress, we base everything we do on somebody's projections.

Mr. **Johnson**. We do understand some of the factors, but if you ask competent economists about their interest rate model, you will find that there are still a lot of questions to be answered.

Referring back to your chart containing the red trend line; it shows upward revisions in the 1985 deficit. You would expect that if psychological impacts of expected growing deficits were to have an effect on the real rate, that light green line would rise simultaneously with the red line, however, it seems to be declining at the same time that the expected deficit is rising. That goes back to my point about the fact that we do not seem to know everything about variables that affect interest rates.

Certainly monetary policy has an effect on the interest rate, and it can affect the interest rate in two ways. Initially, rapidly growing money supply will increase liquidity in the banking system and drive down short-term interest rates, but if that is sustained over long periods of time it could actually cause long-term interest rates to rise.

It is well known that nominal interest rates always reflect expectations about future inflation and, therefore, nominal interest rates rise as inflationary expectations rise. And obviously, since there is a strong link between money growth and inflation rates, if the Fed increases its rate of growth in the money supply at a very rapid pace, this will have an effect on inflationary expectations and thus drive up nominal interest rates.

It is not clear exactly what effect money has on real rates, but some studies have been done with respect to the effect of monetary policy on real interest rates and these studies tend to find that the more volatile is the rate of money supply growth, that the more uncertainty this casts on financial markets about the future course of monetary policy and that this uncertainty places a large risk premium on the real interest rate and therefore real interest rates are to some extent a function of the volatility of money supply growth. A number of studies at Carnegie-Mellon by Alan Meltzer and here at the Treasury Department by my staff and the staff of Beryl Sprinkel have been able to find a fairly significant correlation between monetary policy and real interest rates.

These are all factors and we can go on forever about all of the possible influences on interest rates.

Senator **Jepsen**. May I lovingly and constructively say this: What I would like to know is if we could just make a list of "one-liners" or "one- or two-worder" phrases to describe these influences. We say many things with catch phrases. I know we are used to that. What are the factors that push rates up? Then maybe we could make a laundry list of what the factors are, and, in your opinion, what pushes interest rates down. Then we could look and see which side the forces are strongest right now. But be that as it may, first let us make a list. What are all the things that push interest rates up. Can we just forget about how much and how little that it is directly related to something else? Just what are the factors that push interest rates up, in your opinion, Mr. Carlson?

Mr. **Johnson**. I think, Senator, what I was trying to say makes an important point about that. The same monetary conditions could cause interest rates to go up or down, depending on whether they are short or long.

Senator **Jepsen**. Let us get both sides.

Mr. **Carlson**. Mr. Chairman, we have attempted to try to measure and the fits are pretty good. The statistics are fairly convincing.

If you'll refer to my prepared statement, there are the long-term interest rates over the last 13 years and forecasts for the future as to where the interest rate influence is coming from; monetary policy, the Federal debt, inflationary expectations, and expectations separately on interest rates in the future.

And you can see the order of magnitude. That is a very naive graph you have up here to just show one of the causal factors [indicating], the deficit in relationship to interest rates. There are many other causal factors that are involved.

So, yes, monetary policy, the Federal debt, inflationary expectations, market interest expectations are four very key variables and have been shown with empirical analysis to be significant. This is not just a game we are playing with words, but these are measurements.

Senator **Jepsen**. Let me start a list. You gave a list. Is a demand for loans by private borrowers a cause for the increase in interest rates?

Mr. **Carlson**. Of course.

Mr. **Johnson**. Demand relative to a fixed supply. I hate to be so technical, but you have to hold the supply constant and have an increase in demand. Yes; that would normally do it.

Mr. **Carlson**. Supply can increase at a slower rate and still have an impact.

Senator **Jepsen**. To lay people, your technical distinction is far too copious for me to make that distinction. I would just like to state what factors are causal. Demand for loans by private borrowers is one. Availability of savings, is that another factor?

Mr. **Carlson.** Very important.

Mr. **Johnson.** Yes.

Senator **Jepsen.** Demand for and availability of money?

Mr. **Carlson.** Yes.

Senator **Jepsen.** Inflationary expectations?

Mr. **Carlson.** Yes.

Senator **Jepsen.** Federal deficit?

Mr. **Carlson.** Yes.

Senator **Jepsen.** Capital inflow?

Mr. **Johnson.** We do not know.

Mr. **Carlson.** We have no proof to the contrary before this committee today.

Mr. **Johnson.** And no proof positive.

Mr. **Carlson.** There are some econometric analyses you forgot to comment on.

Senator **Jepsen.** Capital inflow from overseas?

Mr. **Carlson.** Yes.

Senator **Jepsen.** I am going to come back and try to get more.

Senator Proxmire.

Senator **Proxmire.** Thank you, Mr. Chairman.

It seems to me it is pretty obvious interest rates go up like any other price. After all, interest rates are the price of credit. They go up when the demand for credit is by any means increased and when the supply of credit is decreased and vice-versa, they go down when the demand drops and when the supply increases. I think that is fairly simple and all we have to do is identify any of these factors as to whether or not they represent either demand or supply.

Now the deficit represents a perfectly colossal demand of the kind we have never had before for credit. Well, we had a similar situation in World War II. In relationship to the GNP this is a much smaller deficit. But in any other occasion that represents a terrific demand and obviously, it seems to me, that has the effect of pushing up interest rates.

I am sympathetic, Mr. Johnson, I must say, to your position, I really am, because I can just imagine what the fellows over in Treasury would be saying—the fellows who are now in that position—if Jimmy Carter were President of the United States and had a deficit like this. Wow. Pretty obviously, they would be saying deficits cause these interest rates. They are bound to. I am sure that would be it. But I think you have done very well in prepared statement—I think you had assistance from Art Buchwald, especially when you said this: "The total amount of the tax cut will be used to purchase the new bonds if the taxpayer/bondbuyer perceives that the bond interest he receives will be used to pay the future tax required to service the government debt."

Can you see the taxpayer sitting around having coffee with his wife in the morning saying, "Honey, you're going to get that new dress or we are going to take a vacation or eat out. I will tell you, because I perceive that the bond interest I receive will be used to pay the future tax required to service the Government debt. I am going to buy bonds."

Now what actually happened with this tax cut? In the third quarter of 1981, prior to the first round of tax cuts, the personal savings rate was 7.2 percent. People were saving and investing in the Government bonds and in other matters by saving. Last quarter, after the third round of the tax cut, the personal savings rate was 7.7 percent. In other words, they were not saving more. They were not using that tax cut to invest. Therefore, what you say in your prepared statement is what happens when they do not do that when no increase in private savings accompanies the additional Government borrowing and thus the additional demand for loanable funds inevitably results in upward pressure on interest rates.

In view of the fact that that is what happened, the effect was to keep interest rates high. Interest rates nominally dropped, of course, but in relation to inflation, as we have recognized in the questioning we have had so far, they have remained very, very high.

What is your response to all this?

Mr. JOHNSON. Well, first, my response is that, contrary to your point, at the same time these deficits were growing, it is a fact, an empirical fact, that interest rates, both real and nominal, declined over this period.

Senator PROXMIRE. Real declined?

Mr. JOHNSON. Sure.

Senator PROXMIRE. In relationship to inflation?

Mr. JOHNSON. Inflation has been coming down over the recent period.

Senator PROXMIRE. It sure has. We now have an inflation rate of less than 3 percent and what is the interest rate on—to take any figure you want, whether it is Treasury bonds or the crime rate or whatever—is 7 or 8 points higher than the inflation rate. That is much worse than it was in 1979 and 1980. Is that not right, Mr. Carlson?

Mr. CARLSON. I am afraid on real interest rates, they have come down, but they are more than two times what we have had in the postwar period.

Senator PROXMIRE. Well, it depends on the comparison. If you have 2.6 percent inflation, what's your interest rate?

Mr. CARLSON. Well, you are right if you take the actual inflation. I was looking at the underlying inflation. There are some unusual factors this year which have caused inflation to be somewhat down. But if you take the actual, they have not come down very much.

Senator PROXMIRE. Certainly in view of the spectacular drop in inflation you would expect a much bigger drop in the interest rate than we have had.

Mr. CARLSON. You obviously have to have pressures keeping those real interest rates up because we went through the same experience in 1974 through 1977 and interest rates did come down, but it was because inflationary expectations dropped so rapidly, and this time it did not occur because the deficits indicate inflationary pressures in the outyears.

Senator PROXMIRE. Now, Mr. Johnson, you suggest that deficits have no adverse effect on the economy. You believe tax cuts have favorable supply side effects.

According to that reasoning, why do we not just abolish Federal taxing, finance all Federal spending through borrowing?

Mr. JOHNSON. Well, first, I do not want to give the impression that I think deficits do not matter. That's not what I am trying to say. I am not trying to say that deficits do not put some upward pressure on interest rates.

I am saying that deficits could quite well put some upward pressure on interest rates, but we certainly are not able to measure it because of a lot of other things going on in the economy that also put downward pressure on interest rates at the same time and, therefore, maybe the economic environment in a period where we have rising deficits also causes economic conditions that force interest rates down and this effect overwhelms the pressure of deficits on interest rates. I am just saying it is something we cannot measure very well and the studies that do find some relationship—and I have not seen Mr. Carlson's work so I reserve comment on that until I have had a chance to study it—state that for every $100 billion increase in the stock of debt this raises the real interest rate by 0.2 of a percentage point.

Senator PROXMIRE. When you have people as distinguished and widely followed as Henry Kaufman who argues that the deficit is going to absorb one-half to two-thirds of the private savings and that that is putting a tremendous pressure on interest rates, do you think that that is bound to have an effect (a) on interest rate expectations, and (b) that there is some sense in what Mr. Kaufman says just in the logic of it, that that's a tremendous factor that is likely to overwhelm other factors?

Mr. JOHNSON. Yes, I think there's some logical consistency to that thinking, but I think the data are extremely confusing. We have two ways of measuring the personal savings rate in this country. One is by measuring the rate as a residual in the national income accounts; the difference between income and consumption. It shows that the savings rate has gone down relatively recently, although I might add that's not extremely unusual in the initial stages of expansion. Another way of measuring the saving rate is by adding up all the financial accounts, where people house their savings. This procedure is the flow of funds analysis that the Federal Reserve conducts and, of course, they find that over the same period the personal saving rate has gone up to about 10 percent.

Senator PROXMIRE. Now part of your analysis was on the assumption that the deficit had declined and that was in part because you feel that if the administration's proposals were followed we would reduce spending and we will therefore reduce that element of the deficit; is that correct?

Mr. JOHNSON. Yes.

Senator PROXMIRE. Now let me point out that your Secretary has suggested that, but the Secretary of Defense has different ideas. In 1984 he's proposed a $274 billion expenditure for the military. He didn't get quite that but he got $263. In 1985 you go up to $322 billion, by far the biggest peacetime increase we have ever had percentagewise or in absolute terms, an increase of 17.7 percent, a terrific increase.

How can you tell us that we are likely to have a moderation in Federal spending when you have a $50 billion, almost 18-percent increase in this enormous item in the budget? Where are we going to cut the spending to overcome that?

Mr. JOHNSON. Well, I think that our policy is fairly clear on this. Certainly we believe in trying to restore the percentage of the budget devoted to defense that was present in the early 1970's or the 1960's during the Kennedy administration.

Senator PROXMIRE. Well, you are defending the spending increase, but where are you going to cut the spending?

Mr. JOHNSON. Our proposal was to cut back on domestic spending and clearly we and the Congress have failed at this point to substantially reduce that area of spending.

Senator PROXMIRE. Every analysis I have seen has indicated that the cuts you have proposed, if they were accepted, in domestic spending are more than counterbalanced by the increases that have been proposed by Mr. Weinberger in defense spending. It is kind of a wash. Many people would prefer to increase domestic spending. Perhaps that is wrong, but there is no evidence here that the administration has come forward with an overall cut or been able to document it in overall spending if you include defense.

Mr. JOHNSON. I cannot disagree with that. I think that spending is at historically high levels as a percentage of GNP, total spendings, but it is not because we have failed to propose cuts.

Senator PROXMIRE. Then you turn around also and indicate that you do not favor any kind of a tax increase. It seems to me we are in a dilemma. The best you can offer is your good assumptions that if we have continued prosperity we will only have a deficit, only, of $100 billion in the out-year of 1987–88, which it seems to me, under those circumstances, if we had continued prosperity, would be inflationary and have enormous pressure on interest rates with the private sector competing for the money.

Mr. JOHNSON. Well, I think the point is, if you are running a $100 billion deficit in 1988, you have to remember that in a prosperous economy gross national product and saving are growing relative to that $100 billion, so as a percent of GNP it would probably represent only about 2 percent, whereas the current budget deficit represents about 6 percent of the gross national product and, therefore, we would be seeing a decline in credit pressure rather than an increase.

Senator PROXMIRE. May I ask Mr. Carlson, what effect has the recent increase in interest rates—talking about the increase over the last 6 months or so—had on housing starts and housing sales?

Mr. CARLSON. It has caused them to go down from a peak of an annual rate of 2.9 million on existing homes down to about 2.7. In the case of housing starts, it is going down from over 1.9 down to the latest figure of 1.65 million.

Senator PROXMIRE. Now the biggest loser in the recession of 1981–82 was housing, no question about that, as far as jobs are concerned, as far as the effect on overall economic growth.

Mr. CARLSON. The trough was 55-percent decline for the rest of the economy.

Senator PROXMIRE. If the interest rates fail to go down, if they continue to rise over the next year or so, what will that do to your sector where you're expert in, that is housing and housing sales?

Mr. CARLSON. Any long-lived asset, housing included, any structures, plant and equipment, would all suffer. There would be less investment, less employment, less growth at the tail end of this recovery.

Senator PROXMIRE. So that is it your conclusion that unless we do something about the deficit, something decisive to reduce the deficit, that housing is going to be in very serious trouble, unlikely to recover?

Mr. CARLSON. Yes, and that goes for any other long-lived assets. In fact, you know, long-lived assets include human capital investment that people make in themselves in terms of a better job and higher income. So the human capital suffers as well as long-lived statistical capital.

If you would not mind my just commenting, Senator Proxmire, first, I would like to take note that the representative from the Treasury did say the deficits have some impact on interest rates, where the Treasury Secretary himself said that deficits cause a lot of problems; it just happens that high interest rates are not one of them. So perhaps we have already won the debate, if there is a debate.

On the other point, you mentioned the tax cuts of recent years have been disproportionately consumption stimulating tax cuts. In fact, the percent that has gone to stimulate consumption has been a higher proportion of these tax cuts during the last few years than during the tax cuts of the preceding 4 years and I think that that has to be kept in mind, that this was not a proinvestment tax cut, a heavy prosavings tax cut, as a lot of people would lead us to believe.

Senator PROXMIRE. Mr. Carlson, along that line, I think that is a very proper suggestion. There is no question we have not had a tax cut that encourages savings. We have had a tax cut that has encouraged consumption, which is exactly what we do not want.

On the other hand, there are many of us who feel that our Tax Code should be progressive and it is hard to design any tax that is not regressive because of the people who can not save money because their income is low if you are going to tax consumption items.

You are a very able economist. I think if you would put together some kind of a progressive consumption tax—it is not impossible. I have seen many suggestions that we try it. I think that would be a very good contribution and I am sure that many of us would be delighted to support it. In other words, you file your taxes the same way you do now on your income tax, all of your expenditures and all of your income, and then you would not be taxed on the income; you would be taxed on how much you spend. You would be taxed at a higher rate if you spent $100,000 than if you spent $10,000. $10,000 might be exempt entirely. You would scale it up so you would have a situation that would be fair and just and at the same time would encourage savings.

I agree with you that there are two problems. One is the Federal deficit and the other is the dearth of savings in our economy compared to Japan and other economies. Would you consider trying to do that?

Mr. CARLSON. Yes, sir. In fact, I testified before the Congress to move the entire Tax Code more toward the consumption basis and less to savings.

Senator PROXMIRE. If you made it progressive I think it would have a much greater appeal to many of us.

Mr. CARLSON. I can understand the need, but also on the spending side program, there are many spending programs for redistributing income to middle- and upper-income people as opposed to lower-income people, so you need to restructure that side to serve whatever need you have for what is fair.

Senator **Proxmire**. Thank you very much.

Senator **Jepsen**. Senator Abdnor, if I may, to keep perspective here, without defending anyone's budget or any projections, the fact is that a cut in spending has got to be across the board, nothing can be exempt. You have to bite the bullet. Many of us for some time have been advocates of that. Congress has not historically shown the discipline to cut spending anywhere. It is like I have said before, putting Congress in charge of spending is like putting Dracula in charge of the blood bank.

In 1982 and 1983, we had a $97 billion increase in deficit. Just lest someone get the wrong idea that defense has contributed to the large overlying proportion of that, which is about the way it gets fed back, the defense part of that was $27 billion to be exact. That means that some $72 billion occurred elsewhere. And those are available, those are facts and statistics, so that we just keep perspective on it.

Senator Abdnor.

Senator **Abdnor**. Thanks, Mr. Chairman. This has been very interesting. I wish I had been able to be here at the opening to hear the two gentlemen present their statements.

It has been a real education for me to become a member of the Joint Economic Committee. I used to think what any economist told me was the Bible in predicting what is going to happen. But during the first month on the committee five of our Nation's leading economists appeared, and I was convinced that was no longer true.

I am just a country boy from back home who has been trying to run a farm before coming to Washington. Sometimes input from down in the grassroots and the local level is helpful. Maybe they see things clearer in the long run than some of us, with all those great formulas and predictions.

There is one thing I know, and I have often wondered what the difference is between a small business and any kind of a business and the Federal Government. When you get yourself overloaded with debt, you go broke, and they do not take much time foreclosing on you, and that has happened to a lot of farmers, in most cases through no fault of their own.

I just wonder sometimes what the big difference is between a business and government when it comes to debts. Is there really much difference in that? I mean, I guess the Government has got the ability to keep creating money, but is there a relationship between the two?

Mr. **Johnson**. I think there is a reasonable enough analogy to make there and certainly the Government, as well as individuals, if they spend exorbitant amounts of money beyond their means for long periods of time, there have to be negative consequences. Of course, the Federal Government has control over the printing presses.

Senator **Abdnor**. That is not altogether good.

Mr. **Johnson**. No, it is not good at all. I am not suggesting that it is good.

Senator **Abdnor**. It also is taking more money from the people through inflation and taxes and all.

Mr. JOHNSON. That is right. But you have to ask yourself, though, that if you are spending large amounts of taxpayer dollars or money that you have borrowed, the question is how do you best finance those deficits? In studying it seriously, I have never been able to distinguish between the negative economic effects of borrowing versus taxing. Therefore, the one area that is unambiguous in terms of the positive effects on the economy is reducing the level of spending. Pursuing either borrowing or taxing to finance a larger level of spending I am not sure you are solving anything. You have to get that level of spending down so you do not have to have more taxes and more borrowing and I think that that is where the real economic benefits are.

Senator ABDNOR. My position is that, certainly, we can keep taxing. We have been doing that for years through inflation and bracket creep. If that is not a tax, I do not know what it is.

Mr. JOHNSON. It certainly is.

Senator ABDNOR. Now we have ourselves in a situation involving tax indexing. We are going to have to face up to the fact that this Congress is going to have to authorize taxes if they want additional taxes.

Let me ask you, is it true that we actually are paying more taxes today than we were before we put the tax cuts in place?

Mr. JOHNSON. That is true.

Senator ABDNOR. That ought to tell us something to start with. We are just spending too much money around here. I mean, what would it be like if we had not had the tax cuts? How much would we be taking from the people? How much can you take from the people and still keep the kind of country we have got? I know we have not put our earnings into savings like we should have, but we have got to remember we went through a couple years of a recession here and consumers have desires for products and things they postponed purchasing for years. People for the moment are playing catch-up on things they wanted and needed. Hopefully, they are going to play catch-up on housing and that industry will be in better shape.

So I have mixed feelings on this, but I just do not think new taxes is the answer entirely, but on the other hand, we can not allow deficits to continue.

You spoke about defense. I remember when the biggest defense budget ever came up before the Senate, and when it was authorized, just one person in the whole U.S. Senate voted against it. We obviously felt we had put off defense for too long and, as you say, the percent of national product still is not that high in relation to past years.

Something else has happened during that period of time. We have let a lot of programs grow and grow. This big spending that we are witnessing today has been built in just like it was programed on a computer. It is coming at us uncontrollably. I was shocked as a member of the Appropriations Committee, Mr. Chairman, to find out that until this Congress changed the law we really could control only about 17 percent of total spending, and I think that is what people are getting concerned about. If this Congress does not have the nerve to correct it, then I do not know what the Treasury or anybody else can do

On the other hand, I cannot go around arguing that larger deficits do not hurt the recovery. I have got to believe they are an important factor of economic performance. I do not think in the long run Government can be run any different from how businesses and people handle finances. I cannot agree with Alan Greenspan. I read an article by him not long ago where he said that the current high level of interest rates is due mainly to market expectations of future inflation. Again, I am not an economist, but it does not make sense. When people see, down the road, a projection of $200 billion deficits for maybe the next 5 years, adding $1.2 trillion to the deficits, another $100 billion in interest over and above it, it scares me.

What is the added interest to our debt as a part of the gross national product? Does it run around 4 percent?

Mr. Johnson. Our debt is about 30 percent of the gross national product.

Senator Abdnor. I mean yearly addition to debt.

Mr. Johnson. The yearly addition to the debt is currently about 6 percent.

Senator Abdnor. That is not good is it? I do not think we can continue this, and that is why I do not think we can kid ourselves and say these deficits—with momentum like a locomotive—are not going to affect us. I have been told that interest rates used to be just two or three points higher than inflation. Well, if we have brought inflation down to 3.2 percent but still have high interest rates, I just do not understand why. There must be something behind it. I believe that people who deal in long-term capital improvements and investment are scared about Federal spending. Investment has not improved much over the last few years, even though the overall economy has. In the area of long-term capital, I do not think it has, and that bothers me.

Let me ask one other thing that has always been on my mind. We have guaranteed Government loans. The FmHA will guarantee a farmer a loan and yet when they go to the bank to get their loan they are still paying 13, 14, or 15 percent interest. Why should that be? What is behind that? What makes a guy have to pay on a guaranteed loan that the bank knows they are not going to lose because they have Government backing, and still they are charging that level of interest rates. Is there something wrong or is that the way it should be?

Mr. Johnson. Well, I believe we have a substantial financial market out there that determines the interest rates through competition. However, the FHA subsidizes the rate to a certain extent below the market rate, but I do believe that the market determined rate takes into account various risks and expected inflation in the economy and is accurate.

Now the underlying rates may come from some misperception about what future inflation will be, and I think that is what Secretary Regan was getting at when he pointed out earlier that he thought maybe the banks had not fully recognized the true future inflation rate. It is not always true that perceptions are correct about the future, but just the same, people have cause for concern. We have seen too many times in the past where government has promised something and not delivered and the Federal Reserve has said they were going to stabilize monetary growth and did not. So that there is no good reason for people investing in capital markets today to believe that things will be any different in the future. It takes time.

Mr. CARLSON. Senator, in my prepared statement, we attempted the best we can do with empirical analysis to show the Alan Greenspan point. Of the interest rate that applied in the second quarter of 1983, the AAA corporate bonds, the actual was 11.57 percent. Our model predicted 11.51 percent. That is a pretty good fit.

The inflationary expectation is 5.34 percentage points. The Federal debt crowding-out currently is 1 percent.

Now the trouble with the debt is that it worries people about future inflation, so it influences the inflationary expectations, and you can see over the past quarters and years what that inflationary expectation has been and you can see how it has grown since 1980. You can see the high in 1981 and then there has been some dampening effect of inflationary expectations since then, but still very high if you look back during this period.

Senator ABDNOR. Thank you.

Mr. CARLSON. By the way, Senator, there are some of us who still believe in the Bible and we feel we can give some direction in where economic policy should go.

Senator ABDNOR. Does the direction we are going right now concern you greatly, Mr. Johnson?

Mr. JOHNSON. The direction of the economy?

Senator ABDNOR. Well, the economy and what is taking place, yes.

Mr. JOHNSON. Well, I am quite pleased with the performance of the economy.

Senator ABDNOR. At this very moment. I am talking about down the road. I guess that is a better question.

Mr. JOHNSON. Well, I would say that certainly if Government spending continues at the rate that we have seen in the recent past that I would be seriously concerned because we cannot keep funding a higher level of Government spending through borrowing or taxing. It has been very difficult for me to distinguish between the economic consequences of those two means of finance, both of them being bad, then I think that the only course is to try and reduce the rate of growth of Federal spending substantially.

Senator ABDNOR. Which means we have to have the nerve to get into entitlement programs as well.

Mr. JOHNSON. I do not see that we have any choice.

Senator ABDNOR. Again, in Appropriations, we keep going back through the same old areas of the budget where we can cut. We have got those areas pretty well cut and we are ignoring the big items that are central to the problem. Now it is hard to do, but I really feel that if the public fully understood the situation they would be urging us to make some changes. I know many of these programs are difficult to change, but still, I have enough confidence in the people that they would understand the whole picture and forget about all the rhetoric of the big-spending President we have—which is the biggest lie that has ever come down the pike, because he had nothing to do with it except maybe in some of this defense, I just said a moment ago that they are paying more in taxes today than they ever paid before with the cuts. That is not the total answer, especially if this Congress is going to keep adding more to it. We have people talking out of both sides of their mouths around here.

Mr. **Johnson**. Yes, sir.

Senator **Abdnor**. And we've got to face up to these things sometime soon, and we can't have it both ways, and I know defense needs examination, too. But, I submit to you, defense is one of the real responsibilities of the Federal Government. This President, and everybody in the Senate agrees with him, that we have ignored it too long. Some people back home tell me that all you have to do is cut defense and everything is going to fall in place, but you know that is not true.

Mr. **Johnson**. Correct.

Senator **Abdnor**. Those entitlements are going to grow and grow and grow until this Congress is going to say maybe we ought to do something about it, and it is not going to happen until the American people fully understand.

Mr. **Carlson**. Yes, sir, it requires leadership to make sure that could come about. There is not much of that right now.

Senator **Abdnor**. Including the Congress.

Mr. **Carlson**. Yes, sir.

Senator **Jepsen**. Thank you, Senator Abdnor.

I would like, before we close, to ask for your final comments, to ask both of you to comment on an idea that is being advanced by both Democrat and Republican advisers.

Horace Busby, who is a former aide to former President Lyndon Johnson, and Charles Walker, Republican consultant, and several other top level policy analysts are recommending that the Congress and the administration join together to create a bipartisan "Commission on Spending and Taxes." I believe they have already given it the usual abbreviated alphabet soup identification. They call it the CST. They suggest that this "Commission on Spending and Taxes" is directed to report back no later than January 1985 with recommendations for dealing with out-year deficits. Patterned after the successful Social Security Commission, this "Deficit Commission" will deal with a tough political problem and serve as a political heat shield for Congress in the upcoming political year. The Commission would develop budge recommendations in a detached, objective way and then turn its package over to Congress for enactment or rejection. The key is that the commission, as it was certainly with the Social Security Commission and any commissions of this magnitude, must be fully bipartisan. Otherwise, there would be no hope for success.

May I have your comments on this and what do you think of this idea? First of all, Mr. Carlson.

Mr. **Carlson**. I think it is a cop-out. You have the Reconciliation Act you passed this spring and you have to face up to that and Congress is not facing up to it. The need is now. The chances that you can bring down this structural deficit in 1985 which would not be effective until 1986 or 1987 is very slight with the slow growing economy. So the only time you are going to do it on this cycle is to do it now.

There is an intermediate step, if in fact nobody will face up to it in the next month, in shifting over something to do with the time of the first concurrent budget resolution next year by having a summit meeting of some sort in February or March is a shorter term view.

This bipartisan commission is a way to slip this beyond the election and not face up to the issue and we can't afford to wait that long.

Also, it is an abdication of the role of the legislative body in turning it over to a bipartisan commission, and if you think the Social Security Commission was a great commission, you realize they solved the problem by 90-percent increase in taxes and 10-percent modification of benefits.

So I think it is a cop-out and I am really discouraged if the Congress decides to do nothing through the election.

Senator JEPSEN. Thank you. I have no difficulty understanding what you will say. [Laughter.]

Mr. Johnson.

Mr. JOHNSON. I have some sympathy for what Mr. Carlson had to say, although I would favor—and I am sure the President would—any mechanism by which we could come to some consensus agreement on getting Federal spending down.

However, we have some experience with commissions where the outcome turns out to be different than the consensus view on reducing spending, as was just pointed out. So I think we should view a commission with caution, but the administration does not have a position that I know of on this point yet; therefore, I would not want to commit the Treasury to an opinion on this issue.

I would just say that we would certainly be pleased with almost any mechanism that could facilitate agreement about reducing spending.

Senator JEPSEN. Do you have anything else?

Senator ABDNOR. I did have one question I forgot to ask. Either one of these gentlemen, could you give me any reason why interest rates vary in different parts of the country? In my State the lending institutions are charging anywhere from 13 to 16 percent when the prime rate is around 11 percent. What factors make for this great variation? I asked that a moment ago regarding guaranteed loans, but this is true for other loans, too. Is there such a differential all over the country?

Mr. JOHNSON. There is wide variability in interest rates because certain types of interest rates offered, like the prime rates versus the broker loan rate or the commercial paper rate, differ because of the relative risk factors involved.

For instance, you see as much as 18 percent being asked for certain types of consumption-oriented loans; for instance, credit cards and things of that nature, simply because the risk component is high and the margin of profit on these is relatively low, so you do get this variability of interest rates.

However, the prime rate, which is supposed to be the rate charged to prime customers for secured, low risk loans, does not reflect the true preferred rate, as mentioned by Secretary Regan before. I think something like the commercial paper rate is closer to the most available low risk loan, which is running somewhere now around 8.8 percent I believe relative to 11 for the prime.

Mr. CARLSON. I do think there is a problem with home-based financial institutions versus centralized institutions, thereby causing interest rates to likely be higher in South Dakota in the future versus what it was in the past and increased concentration of financial institutions I think is going to lead to a disadvantage for South Dakota because there is a natural chauvinism of big city banks in terms of lending to the rural parts of America and to the smaller cities across the country.

So I think you are going to be increasingly disadvantaged as we have a fostering of economic concentration of banking and, by the way, a fostering by this administration.

Senator **Abdnor**. For people desiring to own a home, what is their alternative? Try to find it in another part of the country?

Mr. **Carlson**. Yes, sir. In fact, if we did not have this increased concentration we would probably have more pluralism and probably South Dakota would be served better.

Senator **Abdnor**. Thank you.

Senator **Jepsen**. Has there ever been any study made on the impact of the economy as a whole as to what extent State and local budget surpluses offset the Federal deficits?

Mr. **Johnson**. Well, there are a number of studies that include State and local surpluses among measures of total savings and try to relate this to the deficit. As a matter of fact, I think that's an important point because even though we have seen Federal borrowing go up substantially and the Federal deficit rise, State and local surpluses are quite substantial at this point so that, as a matter of fact, total Government borrowing as a percentage of GNP is still lower than it was in 1975 when we were just beginning to come out of the recession of 1974–75. Federal Government borrowing was very large and State and local government surpluses were extremely small or practically zero, so that total government borrowing as a percentage of gross national product was larger in 1975 than it is currently.

Mr. **Carlson**. But I think one has to take note that this is primarily the trust fund in particular States and it grows rather slowly over time. The operating funds, which is akin to the Federal deficit, does not fluctuate much. In fact, most States require a balanced budget and therefore do not cause the fluctuation in the deficit situation as the Federal Government has, especially in this last year.

Senator **Jepsen**. In my State of Iowa, the constitution says it shall not go in debt, and therefore we are not in debt nor will we be in debt nor have we been in debt.

Setting aside the provision for emergency in the event of a war or declaration of war, which is very specific and very simply stated in the constitution as one of the main responsibilities of Congress, one of the main reasons we were put together in the first place—setting that aside, should the Federal Government operate on the same basis as most of the States have to operate on?

Mr. **Johnson**. Well, I think that there are some interesting comparisons you can make. About 43 of the States actually have line item veto authority for the Governors of those States, and if I think we are to operate under something like a balanced budget principle, which I do not think is necessarily a bad route to follow, most States have line item veto authority associated with that so the Governor has the ability to assure the balanced budget.

I would prefer before we really look seriously at something like a constitutional amendment to balance the budget or even a congressional resolution that we at least provide the executive branch with line item veto authority allowing the chief executive to help control the situation.

Mr. **Carlson**. Mr. Chairman, obviously that changes the power relationship between the Congress and the President, something that you would be concerned about, but some of us who have been listening to the President's concern about spending are interested in the fact that he would veto the appropriations bills that exceeded his proposed budget, which he has not, and the largest one was the HUD appropriation bill that exceeded his budget proposal by $6 billion, and he did not veto it.

So I do not know if turning the power over to the executive branch, current occupancy included, or keeping it in Congress is particularly wise. However, making it more difficult to have these outsized deficits maybe by having a 60 percent vote or some kind I think is a healthy direction to go, given the inability for the Congress to cope with these kinds of problems.

Senator **Jepsen**. Do you have any closing statements, Mr. Carlson of Mr. Johnson? We will start with you, Mr. Carlson.

Mr. **Carlson**. I would greatly appreciate it if the chairman and the committee could notify the Treasury Secretary that we are waiting for the $1,000 award to be delivered to the committee, and if you folks would then reduce the deficit and reduce the interest rates, we would greatly appreciate doing that.

Senator **Jepsen**. And what was that award for again?

Mr. **Carlson**. It was to show the linkage between the deficits and interest rates and as far as any empirical analysis today I think we have done that, and also I think we have even had a statement from the Treasury representative that said that deficits can influence interest rates and we think that the Treasury Secretary at the golf course in Augusta, Ga., could send $1,000 up and you folks could deposit it to reduce the deficit and thereby interest rates. I think he could afford it, given his past outstanding entrepreneurial activities.

Mr. **Johnson**. Well, in response to that, I do not think it would be quite appropriate to award this so-called Regan prize at this point. Just looking at the appendix to your study I see that your variable for the deficit is actually a debt variable. It is not a deficit variable.

Mr. **Carlson**. It is a flow concept.

Mr. **Johnson**. I notice it is not statistically significant.

Mr. **Carlson**. I think you will find it is. We will be glad to verify that it is.

Senator **Jepsen**. Well, we are going out the way we came in. [Laughter.]

Mr. **Johnson**. I would like to say one last thing. I should not allow this to get by without some comment. Secretary Regan is not at Augusta, Ga., playing golf. He happens to be in the Treasury Department at this time in a meeting on the international debt situation and will be at the White House later. So it is not quite the situation you are led to think. He is trying to deal with a serious debt problem right now which happens to involve Brazil.

Mr. **Carlson**. I apologize. We received this from a source within the Treasury, but evidently that source was mistaken. So I apologize.

Senator **Jepsen**. That leak is about as accurate as most of them.

Mr. JOHNSON. In closing, I would like to say again that Secretary Regan has never tried to dismiss the deficit problem as an inconsequential issue. He has always been very concerned about the level of deficits. He has just tried to focus on the level of spending which I have tried to offer up as a solution today. At the same time, he has been very careful about pointing out that it is not the fact that deficits do not matter; it is the fact that we cannot find a systematic relationship between deficits and interest rates. But, deficits themselves do take funds out of private saving and they do have important consequences because they preempt resources—they represent preemption of resources for private sector use. So we are concerned about them, but I think we have to be very careful about making statements and arguments about the fact that interest rates will fall substantially if we just cut the deficit because I do not think that the evidence bears up to those kinds of statements and I think it is very ambiguous.

Mr. CARLSON. Mr. Chairman, I think the burden of proof is now on the Treasury and we do have some empirical analysis, which they have none, to verify that. I do think, besides the kidding we have been doing, this is a very important topic because it does lead to a policy posture of doing nothing between now and the November 1984 election, and we think that is bad economics and bad politics.

Mr. JOHNSON. We would be more than happy to look at your study very carefully and give you comments.

Senator JEPSEN. I think this morning's hearing is truly an example of democracy at work at its very best. We derive our powers and authority from the bottom up in this country, not from the top down. Americans are competitive in nature and as such they go at things with vigor, as has been displayed here this morning, but we also have what the rest of the world envies, people who yearn for in their hearts, pray every morning and every night for, and that is we have the freedom to exchange ideas in a climate where we can disagree, and as we have always done over our history, band together when something gets really serious and resolve our problems.

The deficit is certainly something that is on everybody's minds. There is no question about it. Regardless of how it got there, it is not going to go away, in real, psychological, or political terms. So it is something that must be addressed. The dialog, materials, thoughts, empirical evidence, and other features presented on behalf of your department, Mr. Johnson, have been most helpful. It may be the first real breakthrough or ray of sunshine or daylight that we have on this topic. As we put our report together we will see that both of you get complete copies of what went on today and I thank you for your contributions and your interest.

Mr. CARLSON. Mr. Chairman, thank you very much for calling this hearing.

Mr. JOHNSON. Thank you, Mr. Chairman.

Senator JEPSEN. The committee is adjourned.

[Whereupon, at 11:50 a.m., the committee adjourned, subject to the call of the Chair.]

THE IMPACT OF DEFICITS ON INTEREST RATES, SAVINGS, INVESTMENT, AND THE DOLLAR

TUESDAY, NOVEMBER 8, 1983

Congress of the United States, Subcommittee
on Economic Goals and Intergovernmental
Policy of the Joint Economic Committee,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:15 a.m., in room 562, Dirksen Senate Office Building, Hon. Lloyd Bentsen (vice chairman of the subcommittee) presiding.

Present: Senator Bentsen and Representative Hamilton.

Also present: James K. Galbraith, deputy director; Charles H. Bradford, assistant director; and George R. Tyler and Paul B. Manchester, professional staff members.

Senator **Bentsen**. The subcommittee will come to order.

Senator Exon, I apologize to you for the delay. I have been down addressing some amendments that are important to my constituents before the Environmental and Public Works Committee. I apologize to you, as well, Mr. Feldstein. We will receive your presentation in just a moment, following comments by Senator Exon. I know your schedule is tight, and how important our time is. So, I will make my opening statement after your testimony. Please proceed, Senator.

STATEMENT OF HON. J. JAMES EXON, A U.S. SENATOR FROM THE STATE OF NEBRASKA

Senator **Exon**. Mr. Chairman, thank you very much, and no apologies are necessary at all. It has been a very difficult morning around the Senate with the unfortunate happenings of last night. I spent the time in a very interesting visit with the next witness while we were waiting for your arrival.

Let me take, if I can, 6 or 7 minutes to sum up my concerns regarding the deficit for you. I appreciate very much the opportunity, Mr. Chairman, to come before your subcommittee, and I salute you for your efforts and your work. I want to personally thank you for the opportunity to testify at what I think is a very important meeting of this subcommittee.

I want to take just a few minutes this morning to try to talk sense about Federal deficits because I know that is a topic which is going to come up here at this hearing this morning.

One of my greatest disappointments since coming to the Senate is the attitude that I have found with regard to Federal deficit spending. In the spring of 1980 when the Federal deficit was projected to be under $20 billion—I repeat that so all can hear—in the spring of 1980 when the Federal deficit was projected to be under $20 billion, most of us spent hours trying to whittle the deficit down so that we could once again have a balanced budget.

What is most disappointing and surprising to me is that just over 3 years later we have, not a deficit of in the $20 billion range, but we have a $200 billion range deficit.

Yet some people would have us believe that the size of these deficits really do not matter. If the deficits are 10 times as large now as they were, we should be putting 10 times as much effort into decreasing those deficits. Those efforts just are not there. Although there has been some movement in the Congress, the White House is treating the $200 billion deficit as if they were $20 billion. This attitude simply must be changed.

I want to try to talk sense about why excessive Federal deficits are bad for our country. To me, there are at least four major reasons we should take action as soon as we can to cut these deficits.

First, Federal borrowing drives up interest rates and high interest rates hurt farmers and ranchers, families who want to buy a home, and businesses that want to expand and provide jobs for Americans. I find it hard to believe that there are some people in the current administration who believe that there is no cause and effect relationship between our Federal deficits and high interest rates. I would point out that the law of supply and demand cannot be repealed. When there is greater and greater demand for money to feed the voracious appetite of the Federal Government, the price of money is simply bound to rise.

The second major reason excessive Federal deficits are bad is that the resulting high interest rates hurt our exports. This country's high interest rates have caused a great demand for the U.S. dollar and its value has consequently risen against other currencies. That makes it very difficult to sell our farm products, for example, overseas. The lesson we must learn here is that our export markets are not going to improve until we get the deficit down.

The third major reason why excessive Federal deficits are bad is that these deficits accumulate over the years. This is the fact which is too often overlooked. I think some people think that at the end of each fiscal year we have a deficit in the range of $200 billion and then somehow it goes away when the fiscal year is over, but the deficit does not disappear. It is added on to the total Federal debt and the total debt is a burden which taxpayers of this country must finance and must be aware of.

If we were a country with low debt, deficits would not be so much of a burden. But this is not the case. I would cite, Mr. Chairman, that it took 200 years to reach the $1 trillion mark in Federal debt, but only 2 years after that dubious milestone was reached, the debt ceiling is now being pushed through the $1.6 trillion mark. This is an unmatched record in fiscal irresponsibility that no one can disagree with.

The implications of all of this rhetoric are truly frightening when put into historical perspective. The total Federal budget just a few years ago was under $100 billion. That is the total Federal budget.

The interest on the debt alone is now over $100 billion and net interest costs have been the fastest growing part of our budget.

When more and more of the Federal budget is going to debt service, less of the budget is available for national defense, justifiable domestic programs, or for simply leaving more in the taxpayer's pocket to begin with.

I fear we are dangerously close to a vicious circle, where debt service costs drive up the total budget which drives up the deficit which drives up the debt which drives up the debt service, and on and on forever and ever. The circle it seems to me must be broken while there is still time to do it. But I suggest, Mr. Chairman, the time is getting very short.

The fourth major reason why I believe deficits are bad is that they represent Robin Hood in reverse. When tax and census statistics become available for the years of the early 1980's I am convinced that they will show excessive deficits and the resulting high interest rates have hurt the young and the poor in our country disproportionately, but that those who have had moneys to invest at high interest rates have had a considerable degree of protection.

This troubles me a great deal, for we are leaving a sorry legacy to future generations. Does our generation, the generation which thrived in the post World War II period, want to be remembered as a generation which left an unmanageable debt to our children and our grandchildren? If we do not take action to cut these deficits, that will be our legacy.

In conclusion, Mr. Chairman, we all know there have been many opportunities when we could have avoided the current situation, but the President and the Congress failed to take advantage of these opportunities and now we must pay the piper. I have offered some of the opportunities myself in the form of legislation and amendments to reduce deficits but, unfortunately, to no avtail. Let us look back for just a moment to 1981 to the amendment that was known as the Exon-Bradley amendment. Had that amendment been adopted, the tax cut of 1983 would have been phased in as a healthy economy permitted.

In 1982 several of us, who are traditional fiscal conservatives, joined together to propose deficit reduction in a balanced, across-the-board manner which attempted to treat all parts of the budget as equitably as possible.

In 1983 we tried a similar approach, but it too was not successful.

You see, it has been too easy for some to ignore the inevitable.

Mr. Chairman, I am convinced that these and other fiscally responsible efforts failed in the Congress because too many people on both sides of Pennsylvania Avenue and on both sides of the political spectrum thought there was an easy way out.

To a person like myself, who has tried to be fiscally responsible in my business, fiscally responsible as the Governor of a State for 8 years, and fiscally responsible as a U.S. Senator, I do not believe that there are any easy solutions.

We simply have to try harder to match income with outgo and to realize that we have a responsibility, once we have decided how much we are going to spend, to set taxes sufficient to cover the total outlay. It is that simple. And the sooner we get on with it, the closer we will be to solving the problem of high interest rates, poor export performance, runaway debt service, and the problems of limited opportunities especially for our children and our grandchildren. We could provide them no greater legacy.

Mr. Chairman, you are going to hear this morning from the chairman of the Council of Economic Advisers, for whom I have great respect. I understand he will address some of these same issues. I have followed with interest the debate within the administration on the effect of deficits on the economy, and I will be most interested to learn what, if anything, the administration is willing to consider here and now to deal with what I think is our number one national domestic problem. The concepts to solve the problem on a true bipartisan basis must be developed and must be carried out.

Mr. Chairman, I thank you very much for the opportunity to be here this morning and I intend to stay and listen as long as I can to the presentation of the next witness.

Senator **Bentsen**. Senator Exon, you have a long, distinguished record as a frugal and prudent administrator of the State of Nebraska. You followed that kind of a responsible record here in the U.S. Senate. I certainly appreciate your comments this morning. I have no questions. I will ask my colleague if he has any questions.

Representative **Hamilton**. No questions.

Senator **Exon**. Some people call me cheap. You did not do that, Mr. Chairman, and I appreciate that very much. [Laughter.]

OPENING STATEMENT OF SENATOR BENTSEN, VICE CHAIRMAN

Senator **Bentsen**. Thank you very much. Senator Exon.

Let me say we want to welcome all of you this morning to this hearing designed to assess the impact of the Federal deficit on savings, investment, interest rates, and the international value of the dollar.

There is a great deal of confusion on this issue because we have so many divergent and contradictory White House signals on whether Congress and the Nation should worry about the astronomical deficits that we face.

On one hand, we have you, Mr. Feldstein, who has repeatedly said that deficits are harmful, that they affect interest rates, and that they have to be reduced. On the other hand, we have Treasury Secretary Regan telling us not to worry, that deficits do not affect interest rates.

On one hand, we have David Packard, the President's representative on the U.S.-Japan Advisory Commission, who says that the deficit-driven overvalued dollar is costing us 2 million lost jobs a year. On the other hand, we have Treasury Under Secretary Sprinkel, who says that deficits have not increased the dollar's value, that any such link is misleading.

Finally, on one hand, we have the Fed Chairman, Paul Volcker, who says the unprecedented deficits pose a great hazard to our recovery. On the other hand, Treasury Assistant Secretary Manuel Johnson contends the recovery is not jeopardized by the deficits.

Those are starkly varying interpretations of the deficit's impact. They have made it very difficult for prompt and effective congressional action on our enormous deficits to occur.

It is Secretary Regan's belief, backed up by what he says is a Treasury analysis, that deficits do not affect interest rates or the dollar. He even proposed last spring in Manila to award what has come to be called the "Regan Prize" to anyone who could prove a connection between deficits and interest rates. I guess he overlooked the article you wrote 14 years ago, Mr. Feldstein, entitled "The Fundamental Determinants of Interest Rates," which appeared in the November 1970 Review of Economics and Statistics. In that paper, you presented a very convincing mathematical and theoretical account of the impact on interest rates of deficits. As a result of that path breaking article, I am sending a letter to Secretary Regan nominating you for the "Regan Prize." I am not sure what the prize is going to be, maybe it will be a lantern to better help light the way in pointing out some of the problems that this Nation is going to face if these incredible deficits are allowed to continue unabated. They will continue to keep interest rates high, which brings in a flood of funds. That flood has raised the value of the dollar, has pushed prices for U.S. goods sky high, and has given us the kind of an imbalance with the Japanese and others that cost us 1.2 million lost jobs. You are as alarmed as me with these effects of the deficit.

That is why I am most impressed with the testimony I have heard you give in the past about the deficit. I am very pleased to have you here to talk about this because we have had a striking pattern over the last several years of deficits pushing up the dollar with a very severe and crippling impact on sales and employment in our basic and high-tech industries. That is one of the tables we can see over here [indicating].

The second table plots the fluctuations in the real international value of the dollar and the Federal deficit. There is a striking pattern of the dollar rising, cutting sharply into our export sales and jobs, almost invariably whenever deficits rise.

The lesson I think is clear: Deficits do matter and they directly affect the dollar and, in turn, our ability to compete abroad and to create and to preserve jobs here at home.

It used to be that our economy could shrug off those kind of fluctuations. We did not have a large percentage of our economy involved in world trade. But that is not the case any more. Deficits matter, they matter a great deal.

Mr. Feldstein, the Finance and Ways and Means Committees are trying to cut the deficit. I have been appointed as one of a group of six to evaluate some spending cuts that are pretty draconian. The purpose is to see if we could slash as much in the way of spending from the budget as we may have in tax increases.

We are talking about trying to put a package together of $150 billion over the next 3 years to begin the long process of trying to get this deficit down. The Congressional Budget Office estimates that the deficit, instead of going down, as growth occurs, will rise to $329 billion by 1989. That means high interest rates for the foreseeable future in this nation. It is time that we do some very tough things in the way of cutting back some more on spending. At the same time I think we are going to have to replace some of the tax cuts that took place.

[The letter, together with the two tables referred to, follows:]

LLOYD BENTSEN
TEXAS

COMMITTEES:
FINANCE
ENVIRONMENT AND PUBLIC WORKS
JOINT ECONOMIC
SELECT COMMITTEE
ON INTELLIGENCE

United States Senate
WASHINGTON, D.C. 20510

November 8, 1983

Honorable Donald Regan
Secretary of the Treasury
15th & Pennsylvania Avenue, N.W.
Washington, D.C. 20220

Dear Mr. Secretary:

To my knowledge what has come to be known as the "Regan Prize" you announced more than six months ago, has gone unclaimed. As you will recall, this prize was offered by you to anyone who can show the connection between high interest rates and high deficits.

Since you did not specify ground rules for the "Regan Prize" which would render ineligible a fellow official of the Administration, I believe the prize rightfully belongs to Martin Feldstein, Chairman of the Council of Economic Advisers, and I therefore nominate him to receive the award. Hopefully, the "Regan Prize" will be an appropriate recognition of Chairman Feldstein's clear findings that federal government debt most assuredly influences the rate of interest.

Chairman Feldstein's finding is no Johnny-come-lately matter, certainly not a conclusion he has only reached since joining this Administration. My nomination, in fact, is based on an article published 13 years ago in the November 1970 edition of "The Review of Economics and Statistics." The article, co-authored by Martin Feldstein and Otto Eckstein, was entitled "The Fundamental Determinants of the Interest Rate."

I recommend highly to you, Mr. Secretary, that article, along with Chairman Feldstein's testimony before the Joint Economic Committee today, which I am sending you under separate cover.

After you have examined these documents, I trust you will agree with me that Chairman Feldstein is truly deserving of the "Regan Prize."

Sincerely,

Lloyd Bentsen

Lloyd M. Bentsen
Vice Chairman

Federal Deficits and Real Interest Rates

1974-1982

Fiscal Year	Federal Deficits (on & off budget) (in billions of $)	Real Interest Rates [1/]
1974	- 6.1	- 2.3%
1975	- 53.2	- 0.7
1976	- 73.7	0.55
1977	- 53.6	- 1.2
1978	- 59.2	- 1.0
1979	- 40.2	- 2.4
1980	- 73.8	- 0.1
1981	- 78.9	5.9
1982	-127.9	8.0

[1/] Prime commercial paper rate (6 months) minus Consumer Price Index.

Federal Deficits and the International Value of the Dollar

1976-1983

Federal Deficits (on & off budget) (in Billions of $)	
FY76	-73.7
77	-53.6
78	-59.2
79	-40.2
80	-73.8
81	-78.9
82	-127.9
83	-207.7

Real Value of the Dollar 1/	
FY76	97.3
77	93.1
78	84.2
79	83.2
80	84.8
81	100.8
82	111.7
83	116.0

1/ Index number, multilateral trade-weighted value (March 1973 = 100)

Senator BENTSEN. Please proceed, Mr. Feldstein.

STATEMENT OF HON. MARTIN FELDSTEIN, CHAIRMAN, COUNCIL OF ECONOMIC ADVISERS

Mr. FELDSTEIN. Well, thank you very much, Senator. It's certainly very pleasant to be here with you and Representative Hamilton.

I can tell from your opening statement that I do not have to review in detail the kind of material that is contained in my prepared statement. You understand very well the basic impact of the kinds of budget deficits that we face in the coming years.

It might be useful if I mentioned a few of the magnitudes that are referred to in the testimony so that we see the size of the problem that we are talking about here, and say a bit about the near-term impact of the deficit on the kind of recovery that we are likely to have and the problems we may run into in the next few years if there is not immediate legislative action.

In your invitation you asked me to talk not only about the impact of the deficit on the economy and on capital formation, but also on the dollar, and what I have done is submit a prepared statement basically on the first of these two subjects and submitted, as an attachment for the record and the staff's use, my October 25 prepared statement I gave to the House Banking Committee that deals more extensively with the impact of the deficit on the dollar.

Let me just try to summarize then some of the key points that I think we should have before us.

I think the magnitude is a good place to start. I think it is clear that if there is no legislative action, we are going to face budget deficits of about $200 billion as far as the eye can see out to the end of the decade and beyond, and that based on the assumption that the economy continues to generate very strong, solid, 4.5-percent real growth next year and 4-percent growth every year after that. Frankly, I do not think that is consistent with the kind of large budget deficits that we are talking about.

Senator BENTSEN. I agree. Those assumptions are just not credible, especially regarding a continuing decline in unemployment, and interest rates falling 40 percent.

Mr. FELDSTEIN. Yes.

Senator BENTSEN. Those assumptions are very optimistic assumptions.

Mr. FELDSTEIN. We assume in these calculations that Treasury bill rates, for example, would fall to about 6 percent. If they do not fall, we are facing a $2,000 billion national debt before the end of the decade unless there is legislative action. Then those higher interest rates inevitably mean longer debt service costs and larger budget deficits.

Perhaps it is useful to look at my prepared statement where I present a breakdown of the future budget deficits between the cyclical and the structural components. It is a rather mechanical calculation. It really calculates what the deficit would be if we had 6.5 percent unemployment and a higher level of GNP that that carries with it. But it makes the point very clearly that although last year roughly half the deficit was cyclical and half was structural, the cyclical deficit is forecast to vanish over the next 5 years—declining from $78 billion this year, $57 billion next, to essentially zero-minus $4 billion in the 1988 fiscal year. But the structural deficit would more than double over that period from $100 billion last year to $214 billion in fiscal year 1988, leaving us, therefore, with a total deficit of more than $200 billion every year from now until 1988 if legislative action is not taken.

Of course, no one can be certain about these forecasts and yet I think what is clear is that growth alone cannot bring the deficits down to an acceptable level, that we face very large deficits no matter what plausible economic forecast is used.

One of the principal effects, as Senator Exon commented, is to increase the national debt. If the national debt were to double over the next 5 to 6 years, it would add about $1,000 billion to the future national debt that has to be serviced. That means interest costs of about $80 billion a year just on the extra debt that we are likely to accumulate over these next 5 or 6 years—$80 billion a year.

In terms of the tax base, that would require a tax increase of 17 percent just to pay the extra interest on the national debt accumulated over these 5 years.

So there is no avoiding the need to either raise taxes or cut spending. It is only a question of when, and the longer we wait, the more we are going to have to do to raise revenue or cut spending because the more interests costs we are going to have to pay.

The primary economic effect of large budget deficits is clearly to absorb savings and therefore to reduce the rate of capital accumulation and the potential rate of economic growth. The budget deficits that would occur if there's no legislative action would average about 5 percent of our GNP over the remainder of the decade. Five percent of GNP would represent about two-thirds of the net private savings that has been generated in our economy. We have had private savings, including the surpluses of State and local governments, that has averaged about 7.5 percent of GNP over the last three decades. Thus, deficits of this magnitude would absorb about two-thirds of the domestic regenerated savings.

Now, in the short term, that would be supplemented. Those domestically generated savings would be supplemented by capital inflow from abroad. Just as we get large trade deficits, the other side of those trade deficits—the financing that goes with those trade deficits—is an inflow of capital from abroad, probably about $30 billion this year.

Senator BENTSEN. Let me ask you something about that kind of assumption. Since there are just two of us attending this hearing with you, would you mind if we interrupted from time to time to ask a question?

Mr. FELDSTEIN. Please do.

Senator BENTSEN. You say that domestic savings would be supplemented by capital continuing to flow in. It has been coming in here for a couple reasons, it seems to me. One is because of the attraction of high real interest rates due largely to present and future deficits. The second cause is that the United States is a refuge, a place of safety. But if you keep piling the kinds of deficits we face on top of one another, that safety becomes a facade. The foreign capital which is really hot money, will flee—the United States will no longer be a safe place to send money.

Mr. FELDSTEIN. I agree with that. That is, I think that after a certain point we are not going to be able to go on attracting funds from elsewhere in the world. They will have accumulated as much U.S. securities as they want to hold and it will not be possible for us then to go on running these large trade deficits and financing them by asking the world to hold more and more of our paper.

Until recently, of course, we have been a capital exporter. The United States has sold more to the rest of the world and earned more in dividends and interest abroad than we have spent on purchases from the rest of the world. We have, therefore, been in a position where we could invest more and more abroad. But that is turned around in the last few years in 1982 we had a small capital inflow. This year it will be larger and next year it will be larger still; but it will not continue indefinitely. For the present, capital inflows can help our domestic capital accumulation. At the same time capital inflows hurt our exports, and those industries that compete with imports, by raising the value of the dollar.

Let me comment more on the near-term impact of these budget deficits. In doing so, let me distinguish between the deficits this year, 1983, and next year, 1984 from the projected future deficits. There is no question that the projected future deficits that loom ahead for the rest of the decade would have severe adverse effects on the character of the recovery and therefore possibly on the duration of the recovery.

There is also some confusion about the impact of the near-term deficits and their possible effects on the pace of the recovery in 1983 and 1984. Although the long-term projected deficits would have an adverse effect, the near-term deficits are actually stimulating the recovery.

Let me read a few pages of the prepared statement. Then I will summarize what I have been saying.

Although the tax cuts in 1982 and again this July increased the 1983 deficit, they also raised after-tax incomes and therefore contributed to the spurt of consumer spending that has been responsible for so much of this year's recovery. Similarly, it is standard textbook economics to note that the direct fiscal stimulus of the large 1984 deficit will actually do more to raise demand in 1984 than the increased real interest rates that result from that deficit will do to depress demand. In other words, it is clearly wrong to say that the 1984 deficit will abort the recovery in 1984.

It is rather the continuing string of large deficits projected out through the end of the decade that is the serious problem for the recovery. The prospect of such deficits inevitably raised the real long-term interest rate above what it otherwise would have been and inevitably crowds out activity in key interest-sensitive sectors. The most conspicuous current example of such crowding out is the sharp decline in net exports. High interest rates in the United States attract funds from the rest of the world, causing the exchange value of the dollar to rise. The overstrong dollar makes it difficult for U.S. products to compete in world markets and makes foreign products more attractive to American buyers. In addition, the high real interest rate we now have is no doubt also causing the demand for housing, for some consumer durables, and for some plant and equipment investment to be much lower than it would otherwise be. In these ways—this is the crucial point—

the anticipation of future deficits weakens the pace of recovery now even though the current deficit actually strengthens the pace of the current recovery.

Moreover, if the deficits persist, and we don't have legislation to change them, the crowding out will also persist, but the pattern of crowding out will change over time. The merchandise trade deficit is likely to shrink, the point that you were making, Senator. That would just focus more of the problem on the domestic capital market. The current rise in profits and retained earnings that result from the recovery and from the 1981 tax changes, that increase in profits and retained earnings temporarily protects business investment and concentrates more of the domestic crowding out on residential construction. But this too will change with time, placing more of the burden of future crowding out on business investment in plant and equipment.

No one can be sure of exactly how the pattern of crowding out will evolve through time. It is clear that the persistence of large structural deficits will produce a lopsided recovery; a recovery that will not be shared fully by the export industries and by those firms that compete with imports from abroad, nor by the construction industry and those industries that are directly involved in the production of capital goods and consumer durables.

As a result, employment and economic activity will shift during this lopsided recovery from these contracting interest-sensitive sectors to the areas of expanding demand in the services and nondurable goods industries and in the defense related industries. If this shift of demand—and this is really the key to understanding the likely impact of these deficits on the overall pace of the recovery—proceeds smoothly enough, the overall recovery will continue at a satisfactory pace with declining total unemployment. But it is quite possible that the additional demand would concentrate in sectors that will be operating close to capacity while the crowding out withdraws demand from industries where a great deal of excess capacity already exists. If so, much of the additional demand would be absorbed in price increases rather than increased output, while the crowding out would add to unemployment. In other words, if this occurs, the lopsided recovery would be slower paced, would be more fragile, and would be more inflationary than a more balanced, healthy recovery.

You can tell from what I have been saying, I believe that no one can predict in detail the effects of a continuing series of such unprecedentedly large deficits. With persistent deficits of the magnitude that is now projected, the economy is sailing into essentially uncharted territory. The economy could continue to experience a satisfactory overall pace of recovery for several years to come with declining rates of unemployment and inflation, despite this lopsided character of the recovery. But deficits of the magnitude that are projected could lead instead to imbalances within the economy that cause the recovery to lose momentum within the next few years. There is also the risk that the persistent deficits could lead to inappropriate economic policies in the future. An overly expansionary monetary policy would cause increased inflation while a quick-fix fiscal contraction could depress economic activity. Although no one can be sure just how the economy will behave in the face of such unprecedented deficits, the longer the deficits are expected to persist, the greater are the risks to our economic future.

That is why the President sent a budget to Congress earlier this year that proposed to cut the 1986 fiscal year deficit nearly in half and to reduce the 1988 fiscal year deficit to only about 1.5 percent of GNP. I know there is some doubt these days about the President's commitment to reducing the budget deficit and in particular about his willingness to include additional tax revenue in an overall budget package which includes substantial reductions in domestic spending as well. Some skeptics say that it looks like the President has been convinced that deficits don't matter. Frankly, I think that is nonsense. The President believes that deficits are harmful and that it is wrong to leave an enlarged debt to our children.

The budget plan that the President submitted to Congress earlier this year calls for a balanced package with approximately equal amounts of spending cuts and conditional tax increases over the next 5 years—equal amounts. The President believes that the next step is up to Congress and that it must be prepared to accept spending cuts as well as tax increases.

Now, Mr. Chairman, I would like to be responsive to the way you would like to manage the time that you have this morning. I could talk more if you want about the crowding out process or I could simply summarize and we could go on to questions.

Thank you, Senator.

[The prepared statement of Mr. Feldstein, together with an attachment referred to, follows:]

PREPARED STATEMENT OF HON. MARTIN FELDSTEIN

Budget Deficits, Economic Activity and Net Capital Formation

Thank you, Mr. Chairman. I am always pleased to appear before the Joint Economic Committee. You asked me in your invitation to speak about the impact of the prospective budget deficits on the economy, on capital formation and on the dollar. I will begin this morning by discussing the subject in general and will then focus on the specific issue of the ways in which the budget deficit influences net capital formation. Although I will comment only briefly on the international consequences of the budget deficit, I am submitting a copy of recent testimony that I gave on this subject to the House Banking Committee. I would of course be happy to answer your questions on any of this material.

As you know, the Administration's midyear analysis estimated roughly $200 billion deficits in each of the next five years if there is no legislative action to reduce spending or raise revenue. Of course, much of the current deficit reflects the recession. The 1983 fiscal year deficit of $195 billion was divided almost equally between a cyclical component and a structural component. (The cyclical component is calculated as the reduction in tax revenue and the increase in outlays on unemployment benefits and other cyclically sensitive programs that occur because the unemployment rate exceeds 6.5 percent. The structural component is therefore the amount of deficit that would not disappear even if the unemployment rate were now 6.5 percent.)

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* Chairman, Council of Economic Advisers. Testimony before the Joint Economic Committee, November 8, 1983.

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Our estimates of future deficits assume that the cyclical component of the deficit will shrink and vanish as the recovery continues, lowering the unemployment rate to 6.5 percent by 1988. But the structural deficit is forecast to grow as rapidly as the cyclical deficit shrinks because future spending increases exceed the future rise in tax revenue. By 1988, the entire projected budget deficit is structural. The evolution of these two components, based on the Administration's midsession review of the implications of the current tax law and the current service levels of domestic spending, is shown in Table 1.

Table 1

Components of the Budget Deficit

	Cyclical Deficit	Structural Deficit	Total Deficit
	(Billions of Dollars)		
FY 1983	$95	$100	$195
FY 1984	78	122	200
FY 1985	57	149	206
FY 1986	41	178	219
FY 1987	22	206	228
FY 1988	-4	214	210

Although no one can forecast future deficits with precision, I think there can be little doubt that growth alone will not reduce the deficit to an acceptable level. A one percent increase in the current level of real GNP would reduce the deficit by only about $12 billion. Economic growth that is faster than predicted would shrink the future deficits, but any shortfall in the pace of the recovery in the next six years relative to our predicted average real growth rate of about 4 percent would mean correspondingly greater deficits. Similarly, the deficit would be decreased if the Treasury bill rate falls by 1988 to less than the 6.1 percent that is assumed in our calculation, but the deficit would be larger if the Treasury bill rate rises or fails to decline from the present 8.5 percent to 6.1 percent in this way.

The most direct effect of large budget deficits would be to increase the size of the national debt. The cumulative budget deficit of $1,000 billion over the next five or six years would nearly double the privately held national debt. The annual interest on this extra debt alone would represent a permanent cost of about $80 billion, an amount equal to 17 percent of the personal income tax revenue now projected for 1988.

Economic Effects

The primary economic effect of persistent budget deficits is to absorb private saving, reducing the long-term rate of capital formation and therefore the potential rate of real economic growth. The annual projected budget deficits are equivalent to five percent of GNP between now and 1988. Net private saving during the past three decades has averaged about seven and a half percent of GNP and shows no sign of increasing. A budget deficit of five percent of GNP would therefore absorb an amount equal to two-thirds of the net domestic saving that would otherwise be available to finance investments in housing and in business plant and equipment. Although capital inflows from abroad would partially and temporarily provide an additional source of capital, the total crowding out would remain very substantial. I shall return in a few minutes to discuss the impact of budget deficits on capital formation in more detail.

But first I want to discuss the impact of the budget deficits on the near term recovery. In considering this issue, it is important to distinguish the deficits in 1983 and 1984 from the deficits that are projected for the more distant future. Although the projected future deficits are likely to have serious adverse consequences on the character and possibly the duration of the recovery, the near term deficits probably have a positive impact on the pace of recovery in 1983 and 1984. Let me explain why.

Although the tax cuts in 1982 and again this July increased the 1983 deficit, they also raised after-tax incomes and therefore contributed to the spurt of consumer spending that has been responsible for so much of this year's recovery. Similarly, it is standard textbook economics to note that the direct fiscal stimulus of the large 1984 deficit will do more to raise demand in 1984 than the increased real interest rates that result from 1984's deficit will do to depress demand. It is clearly wrong to say that next year's deficit will abort the recovery in 1984.

It is rather the continuing string of large deficits projected out through the end of the decade that is the serious problem for the recovery. The prospect of such deficits inevitably raises the real long-term interest rate above what it otherwise would have been and crowds out activity in key interest-sensitive sectors. The most conspicuous current example of such crowding out is the sharp decline in net exports. High interest rates in the United States attract funds from the rest of the world, causing the exchange value of the dollar to rise. The over-strong dollar makes it difficult for U.S. products to compete in world markets and makes foreign products more attractive to American buyers. In addition, the high real interest rate is no doubt also causing the demand for housing, for some consumer durables, and for some plant and equipment investment to be lower now than it would otherwise be. In these ways, the anticipation of future deficits weakens the pace of recovery now even though the current deficit strengthens the pace of the current recovery.

If the deficits persist, the crowding out will also persist but the pattern of crowding out will change over time. The merchandise trade deficit is likely to shrink, focusing more of the problem on the domestic capital market. The current rise in profits and retained earnings that result from the cyclical upturn and from the 1981 tax changes also temporarily protects business investment and concentrates more of the domestic crowding out on residential construction. This too will change with time, placing more of the burden of future crowding out on business investment in plant and equipment.

No one can be sure of exactly how the pattern of crowding out will evolve through time. It is clear however that the persistence of large structural budget deficits will produce a lopsided recovery; the recovery will not be shared fully by the export industries and those firms that compete with imports from abroad nor by the construction industry and those industries that are directly involved in the production of capital goods and consumer durables.

As a result, employment and economic activity will shift from these contracting interest-sensitive sectors to the areas of expanding demand in the services and nondurable goods industries and in the defense related industries. If this shift of demand proceeds smoothly enough, the overall recovery will continue at a satisfactory pace with declining total unemployment. It is quite possible, however, that the additional demand would concentrate in sectors that will be operating close to capacity while the crowding out withdraws demand from industries where a great deal of excess capacity exists. If so, much of the additional demand would be absorbed in price increases while the crowding out would add to unemployment. If this occurs, the lopsided recovery would be slower paced, more fragile and more inflationary than a more balanced recovery.

As you can tell from what I've been saying, I believe that no one can predict in detail the effects of a continuing series of such unprecedentedly large deficits. With persistent deficits of the magnitude that is now projected, the economy is sailing into essentially uncharted territory. The economy could continue to experience a satisfactory overall pace of recovery for several years to come with declining rates of unemployment and inflation. But deficits of this magnitude could lead instead to imbalances within the economy that cause the recovery to lose momentum within the next few years. There is also the risk that the persistent deficits could lead to inappropriate economic policies in the future. An overly expansionary monetary policy would cause increased inflation while a quick-fix fiscal contraction could depress economic activity. Although no one can be sure just how the economy will behave in the face of such unprecedented deficits, the longer the deficits are expected to persist, the greater are the risks to our economic future.

That's why the President sent a budget to Congress earlier this year that proposed to cut the 1986 fiscal year deficit nearly in half and to reduce the 1988 fiscal year deficit to only about 1.5 percent of GNP. There is, I know, some doubt these days about the President's commitment to reducing the budget deficit and in particular about his willingness to include additional tax revenue in an overall budget package which includes substantial reduction in domestic spending. Some skeptics say that it looks like the President has been convinced that deficits don't matter. Frankly, that's nonsense. The President believes that deficits are harmful and that it is wrong to leave an enlarged national debt to our children.

The budget plan that the President submitted to Congress earlier this year calls for a balanced package with approximately equal amounts of spending cuts and conditional tax increases over the next five years. The President believes that the next step is up to Congress and that it must be prepared to accept spending cuts as well as tax increases.

Deficits and Capital Formation

Let me turn now to the more specific question that you raised about the effects of taxes on capital formation. Although the primary long-term economic effect of budget deficits is to reduce capital formation, it is too simplistic to say that each dollar of additional budget deficit necessarily reduces capital accumulation by a dollar. The actual impact varies over time, with less crowding out of capital formation likely in the first year or two after an increase in the budget deficit than in subsequent years.

It is helpful to begin by examining the sources of finance for capital formation. The primary source of funds for domestic capital formation -- that is, for investment in housing, in business plant and equipment, and in inventories -- is the private saving of households and businesses. Table 2 shows that private saving averaged 7.3 percent of GNP in the three decades from 1950 through 1979. Since then private saving has averaged 5.6 percent of GNP.

The surpluses of state and local governments add to available domestic saving. This additional saving averaged 0.5 percent of GNP in the three decades beginning 1950 and 1.2 percent of GNP in the nearly four years since 1980.

The final source of saving is the inflow of capital from abroad. For the three decades from 1950 through 1980, the United States was a capital exporter to the rest of the world and the outflow absorbed savings equal to 0.2 percent of GNP.[1] But in more recent years the flow has been reversed. In 1982, the net inflow of capital was only 0.3 percent of GNP but this year we expect that it will be 0.9 percent of GNP. Next year's international capital inflow may be as much as two percent of GNP.

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[1] This is the net foreign investment flow shown in the national income account.

Table 2

Net Saving and Investment As Percentages of GNP

	Net Private Saving	State and Local Surplus or Deficit	Federal Surplus or Deficit	Net National Saving	Capital Outflow (-) or Inflow (+) from Abroad	Net Domestic Investment	Discrepancy
1950-59	7.2	-0.2	0.0	7.0	-0.2	7.0	0.2
1960-69	7.9	0.0	-0.3	7.6	-0.5	7.1	--
1970-79	7.1	1.0	-1.8	6.3	0.0	6.4	0.1
1950-79	7.3	0.5	-1.1	6.7	-0.2	6.7	0.2
1980	5.4	1.2	-2.3	4.3	-0.2	4.1	--
1981	6.1	1.2	-2.1	5.2	-0.1	4.9	-0.2
1982	5.3	1.0	-4.8	1.5	0.3	1.8	--
1983*	5.5	1.5	-5.5	1.5	0.9	2.4	--

*Average of first 3 quarters. Saving and discrepancy estimated by CEA.

Note: Net National Saving is the sum of (1) net private saving, (2) State and local surplus and (3) Federal surplus.

Net Domestic Investment equals net national saving plus the capital inflow from abroad except for a small discrepancy that reflects statistical measurement problems and rounding errors.

The total supply of available saving -- private saving plus state-local government surpluses plus the international capital inflow -- is divided between government borrowing and real capital investment. If total saving is fixed, an extra dollar of budget deficit means a dollar less of net capital investment. But total saving is not fixed and responds to changes in deficits, especially in the short term. The key question therefore is to evaluate the effect of an increased budget deficit of total saving.

Since the impact depends to some extent on the particular source of the increased deficit, I will focus first on the effect of a permanent increase in the deficit caused by increased government purchases of goods and services. I will then comment on the effect of different kinds of tax changes.

It is useful to distinguish three effects of increased government spending on total saving. First, if the economy is operating at less than full capacity, an increase in government spending will raise the level of total activity and therefore of income. Some of the higher income will be consumed but the rest will be saved. In the simplest textbook version of the Keynesian economic theory, the induced rise in income is large enough to avoid any crowding-out because an increase in the deficit causes such a large rise in real income that the saving out of this extra income is sufficient to finance the entire increased deficit. But even the textbooks are quick to point out the many reasons why this would not occur in practice.[1] In particular, with the kind of monetary policy that is currently being pursued in the United States, each extra dollar of government spending is likely to raise real GNP by only about one dollar in the short run and by much less after a very few years. The effect of a permanently higher level of government spending on real GNP can be expected to fade out within a few years.

How much would saving increase as a result of the induced rise in income? Even if 20 cents out of every extra dollar of income were saved, a $100 rise in government spending would only increase saving by about $20 in the first year and then by amounts that soon fade away to nothing. To state this conclusion in a slightly different way, it is clear that if monetary policy returns the economy to the desired path of real economic growth and inflation, any increase in the budget deficit must cause a dollar-for-dollar crowding out of private GNP, thereby eliminating this source of a possible increase in saving. A reasonable estimate is that the immediate effect of the increased deficit on private saving is no more than twenty percent and that this effect declines with time.

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[1] It is interesting to look at the very simplest Keynesian model and to ask how much of a rise in real GNP would be needed to generate enough extra savings to avoid crowding out. Even if 20 cents out of every extra dollar of income were saved -- and that would be about three times the historical ratio of net savings to GNP -- the rise in income would have to be five times as great as the rise in the deficit. By this calculation, the increase in the deficit from the roughly $50 billion annual rate in the late 1970's to a $200 billion rate now would cause no crowding out only if GNP rose some $750 billion because of the deficit, that is, only if without the increased deficit GNP would currently be about one-fourth lower than it actually is. I think there can be no doubt about the implausibility of such an induced increase in income and therefore no doubt that the rise in income is not large enough to avoid crowding out.

In addition to this temporary source of increased saving in response to increased GNP, an increased budget deficit could stimulate more saving by raising the saving rate -- that is, the ratio of saving to GNP. To the extent that increased budget deficits raise the real rate of interest, individuals and businesses may be induced to save more and spend less on interest sensitive goods. Some economists also suggest that individuals may raise their saving rates when they see budget deficits because they infer that they and their heirs will later be taxed to pay for these deficits. Whatever the possible logic of these arguments, there is no evidence that private saving rates have been induced to rise in recent years by the rise in budget deficits. Indeed, as Table 2 shows, the share of private saving in GNP has actually declined in the past three years, presumably because of cyclical reasons.

The final potential source of increased savings is the inflow of savings from abroad. The budget deficit, by raising the real interest rate, attracts funds from abroad. This capital inflow begins after a lag, rises to a peak, and then shrinks. Even with a constant budget deficit, the inflow of capital from abroad eventually contracts because foreigners become increasingly unwilling to hold still more U.S. assets in their portfolios. Although the amount of the initial increase in the deficit that is financed from abroad depends on a complex set of expectations, initially about one-third of the increased deficit would be financed by a capital inflow.

This estimate is roughly consistent with the statistical evidence on the experience of the past three years. Between 1980 and 1984, we expect to see the budget deficit rise by about $150 billion and the trade deficit rise by about $75 billion. If there were no other reason for the large trade deficit, I would therefore say that about half of the increased budget deficit was being financed by an increased capital inflow from the rest of the world. But the enlarged trade deficit in the past few years has also reflected the reduction in the import financing capability of the LDC's and the more advanced stage of the recovery here relative to Europe. Without preparing detailed estimates of each effect, I conclude that the recent experience is therefore generally consistent with the estimate that about one-third of the increased deficit is financed by a capital inflow. It is important to stress that this share shrinks over time as foreign investors become unwilling to hold more and more dollar assets at existing interest rates.

To summarize what I have been saying, the early effect of an increase in the budget deficit is to induce an increase in domestic savings plus capital inflows from abroad equal to about half of the increased deficit. The initial crowding out of private net capital formation is therefore also equal to about half of the increased budget deficit. But the induced increase in total domestic and foreign savings soon shrinks rapidly. Within a few years, the crowding out of private net capital formation probably reaches 80 percent to 90 percent of the increased budget deficit.

The figures on net investment that are shown in Table 2 indicate that net private investment has fallen from 6.9 percent of GNP in the three decade period through 1979 to only 2.1 percent of GNP in the past two years. Although some of this decline is due to the business cycle, the numbers are clearly consistent with the notion that large persistent budget deficits crowd out private investment to a great extent.

Tax Changes

The crowding out effect of tax changes depends very much on the type of the tax that is changed. Any tax change has two effects on private saving in addition to the effects that I've already described for changes in government spending on goods and services. A tax reduction increases disposable income (at any level of GNP) and some of this disposable income will be saved. In addition, changes in tax rules can affect the proportion of income that individuals choose to save.

The importance of these effects depends on the type of tax change that is made. A permanent, across-the-board tax cut of the type that we have had in the past three years will flow mainly to consumption. Although I cannot give you a precise estimate of this, I would say that more than two-thirds of the reduction in personal revenue is likely to be added to consumption. I base this conclusion on two observations.

First, the tax reduction is broad based with roughly half of the tax savings going to individuals with incomes below $40,000. For most such families, consumption takes almost all of any increase in disposable income. Second, the across-the-board tax reduction has relatively little effect on after-tax rates of return on savings except among individuals with the highest marginal tax rates. Consider for example a taxpayer who now has a marginal tax rate of 30 percent. The effect of the tax cut was to reduce his marginal tax rate from approximately 40 percent to the current 30 percent. This implies that an individual who earns a 10 percent pretax rate of return would see the after-tax rate of return rise from 6 percent to 7 percent. While this increase should probably stimulate a higher rate of saving, this additional effect is likely to be quite small relative to the total reduction in the individual's tax liability.

A four person family with a tax rate of 25 percent corresponds to a household with total pretax income of about $30,000 and saving of about $1400. The 25 percent tax reduction saved that household roughly $1000 in taxes. Even if the rise in the after tax rate of return causes savings to rise by 20 percent, the extra savings induced in this way would be only $280 or 28 percent of the tax reduction.

Although an across-the-board change in tax rates results primarily in a change in consumption, a change in tax rules that focuses on saving incentives can alter savings by as much or more than the change in tax revenue. Consider, for example, the increase in the IRA limit for married couples that the President has recently proposed. Although the extra IRA contributions would result in lower tax revenue for the Treasury, the induced increase in saving may well exceed the loss in tax revenue.

This can be illustrated by an example of a couple that pays a marginal tax rate of 30 percent and now makes the maximum IRA contribution of $2,250. They are now unwilling to save more than $2,250 but would save an extra $1,000 if the ceiling were raised to make this saving tax deductible. The extra $1,000 would reduce tax receipts by $300 but would add $1,000 to saving. Thus total national saving available for capital investment would rise by $700. Although this calculation is only illustrative, it does indicate how a tax cut that is aimed at raising saving can increase private saving by more than it raises government borrowing. While this definitely doesn't characterize the entire recent tax reduction, it should serve as a warning that reducing the future budget deficit by eliminating saving incentives can be counterproductive by reducing total national savings.

Concluding Comments

Although the near-term effects of changes in the government's budget deficit are complex, there can be no doubt that the long-term effect of persistent budget deficits is to reduce capital accumulation. Budget deficits of the magnitude that would continue until the end of the decade without legislative action are large enough to absorb about two-thirds of all domestic saving. Reducing these budget deficits must therefore be a key goal of government policy.

The present challenge to fiscal policy is unique. A major reduction in the structural budget deficit must be achieved without causing a contraction of overall economic activity. A reduction in the budget deficit means less government spending and less spending by the consumers who pay increased taxes. Since the direct effect of both of these is to reduce overall demand and economic activity, they must be offset by an expansion of other types of spending. With consumption and government spending contracting, investment and net exports must expand.

A reduction in the level of the budget deficit automatically stimulates investment and net exports by lowering the real rate of interest and the exchange value of the dollar. However, experience shows that the rise in investment and in exports follows the fall in the interest rate and exchange rate only with a substantial lag.

It would be wrong therefore to raise taxes or reduce spending by a substantial amount in 1983 or 1984. To raise any significant amount of tax revenue without jeopardizing the recovery, the tax increase should be enacted a year or two before it is scheduled to take effect. Such advance notice to the financial markets would mean a stronger subsequent recovery that could absorb tax increases and spending cuts without a contraction of overall economic activity.

The President's proposed budget is especially well designed to deal with the fiscal problem that we now face. It calls for enacting now a combination of spending cuts and conditional tax increases for fiscal year 1986. The proposed budget impact in FY 1984 and FY 1985 is small but in FY 1986 the President's proposal calls for a $90 billion deficit reduction. By enacting this budget now, the Congress would send a strong signal of fiscal responsibility to the financial markets and the business community. Enacting the President's budget now would strengthen confidence in the future, would reduce real interest rates and would make the dollar more competitive in world markets. The result would be a sound basis for a transition to lower budget deficits with continued economic growth.

Exchange Rates and the Dollar

Martin Feldstein*

Thank you. I am pleased to appear before this committee and to respond to your request for my views about the strength of the dollar and its relation to monetary and fiscal policy.

The strength of the dollar has become a subject of great national interest. Since 1980, the exchange value of the dollar has increased nearly 50 percent relative to the other major currencies of the world after adjusting for differences in inflation. Why has the dollar risen so much? There is no single reason but I believe that the primary reason has been the mix of fiscal and monetary policies: the large projected budget deficits combined with the expectation that the Federal Reserve will not permit the deficits to increase the rate of inflation in the United States. This morning I will explain why both aspects of the fiscal-monetary mix are important. I will also discuss several other factors that have contributed to the strength of the dollar.

Some Basic Ideas

To explain the exchange rate effects of fiscal and monetary policies, it is necessary to begin by establishing some basic ideas about international finance. The most fundamental of these is the distinction between the nominal exchange rate and the real exchange rate. To be specific, let me discuss the exchange rate between the dollar and the German mark. The nominal exchange rate is simply the number of German marks that can be purchased per dollar. The real exchange rate adjusts this ratio of currency units for different movements in the price levels within the two countries. Thus, in 1980, $100 could be exchanged for 182 German marks. In contrast, at the beginning of the present month, $100 could be exchanged for 262 German marks. The nominal exchange value of the dollar relative to the mark thus rose 44 percent.

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* Chairman, Council of Economic Advisers. Testimony to the House Banking Subcommittees on International Trade and Domestic Monetary Policy. October 25, 1983.

The effect on international trade of this rise in the number of marks per dollar depends on what happened to domestic prices in Germany and the U.S. during the same period. If the level of German prices had risen by 44 percent relative to the level of American prices during these three years, the rise in the nominal exchange value of the dollar would only have offset the change in relative domestic prices. The purchasing power of a dollar in the United States relative to its purchasing power in Germany would not have changed. In the technical language of international finance, the real exchange rate would not have changed and therefore the incentives to import and export would not have changed.

In fact, the price level in Germany did not rise relative to the level of American prices during the past three years. Since

1980, the U.S. price level has risen 22 percent and the German price level has risen 16 percent. Adjusting the dollar's 44 percent nominal appreciation relative to the mark for this shift in domestic prices implies that the dollar's real value relative to the mark has risen 51 percent since 1980. This means that a dollar now buys some 51 percent more in Germany, relative to its purchasing power in the United States, than it did in 1980.

It is the rise in the real exchange value of the dollar relative to the other major currencies of the world that is the primary reason for the substantial trade deficit that the American economy is now experiencing.[1] In 1983, the trade deficit is likely to be between $60 billion and $70 billion, or nearly twice last year's $36 billion record level. For next year, it looks more and more like we will have a trade deficit of more than $100 billion. These trade deficits reflect a substantial decline in U.S. exports and a large rise in U.S. imports. Both of these trends are doing very substantial damage to major segments of American industry. Moreover, to pay for these huge trade deficits, the United States is being forced to reduce our stock of overseas investments and to borrow abroad.

Monetary Changes

The principal reason for major changes in nominal exchange rates is the changes in domestic price levels caused by monetary policy. If a country pursues an inflationary monetary policy that causes its domestic price level to double in five years, the nominal exchange value of its currency is likely to fall by half during this same period in relation to another country that had experienced no inflation. In that way, the real exchange value of the currency remains unchanged. Although this is an oversimplification that does not hold precisely in practice, especially in the very short term, it is a reasonable approximation to the actual previous experience of many countries. The important thing about monetary changes is that they have no persistent effect on real exchange rates.

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[1] The other reasons for the trade deficit now are (1) the relative cyclical position of the United States and our major trading partners and (2) the contraction of imports by the OPEC countries and by the debtor nations.

Trade Preferences

The changes in real exchange rates reflect changes in either trade preferences or investment preferences. To focus first on changes in trade preferences, assume for the moment that there is no change in foreigners' desire to hold U.S. assets or in the rate of return on such assets.

If foreigners increase their demand for American goods, the dollar will rise while if Americans increase their demand for foreign goods, the dollar will decline. It is perhaps easiest and most natural to think of this change in the dollar's value as a direct result of the change in the demand for dollars or for foreign currency. There is another and perhaps clearer way of explaining why the dollar falls when Americans spontaneously increase their demand for foreign goods. The resulting increase in American imports causes a trade deficit. Since a trade deficit cannot persist indefinitely, something must change to make American exports more attractive to foreigners and foreign products less attractive to Americans. That change is a fall in the value of the dollar.

During the period when imports by Americans do exceed our exports to the rest of the world, foreigners must accept additional dollar securities in exchange for our excess imports. Stating this in different words, we finance the excess imports by borrowing from the rest of the world or by selling U.S. assets to foreigners. This accommodating flow of credit or capital to the United States is an inevitable corollary of the trade deficit.

Investment Preferences

Consider now the effect of a change in investment preferences that causes Americans or foreigners to want to shift the mix of their investments between the United States and the rest of the world. (To focus on this change in investment preferences, assume that there is no change in trade preferences for American or foreign goods.) A change in investment preferences that causes an increase in the real value of the dollar might come about because investors consider the United States to be a safer place to have their investments or because the real rate of return on dollar investments increases. In either case, investors will sell foreign currencies and buy dollars, thereby raising the dollar's value.

Note that a consequence of the dollar's higher value is to make U.S. exports less competitive and foreign goods more attractive to American buyers. The dollar's higher value thus worsens a trade deficit. Once again, the excess imports are financed by a flow of credit or capital from the rest of the world to the United States. The increase in the U.S. trade deficit equals the net increase in the capital inflow to the United States. But this time the change in investment preferences is the basic cause and the trade deficit is the accommodating flow of goods.

Recent Experience

The increase in the real exchange value of the dollar since 1980 has been due to a change in investment preferences rather than a change in trade preferences. The dollar has strengthened because investors want to hold dollar investments and the strong dollar has induced an accommodating trade deficit.

One possible reason for the increased attractiveness of U.S. investments has been the sense that the safety of investing in the United States may have increased relative to the safety of investing elsewhere. This in turn may reflect such things as a greater confidence in American resistance to inflationary pressures and the increased turmoil in many less developed countries. It is difficult to know how much weight should be attributed to this, especially since recent political developments in several European countries have also increased investor confidence in those countries as well.

A second reason for the increased attractiveness of dollar securities and the rise in the real value of the dollar has been the substantial decline in the expected rate of inflation since 1980. Although the primary long-term effect of a lower rate of inflation is to reduce the on-going erosion of the dollar's _nominal_ value while leaving its _real_ value unchanged, the reduction in inflation and in the expected future rate of inflation do have significant short-term effects on the dollar's real value. When inflation began to fall in 1981, the real rate of interest in the United States temporarily increased significantly. The higher real rate of interest here relative to that in other countries attracted investments from other currencies to dollar assets, thereby causing the real value of the dollar to rise temporarily. Of course, the effect of the decline in the inflation rate on the real interest rate is only temporary and cannot explain a continued persistence of high real interest rates.

The confidence among investors world-wide that, despite the large projected U.S. budget deficits, the Federal Reserve will not pursue an inflationary monetary policy prevents deterioration of both the real exchange rate and the nominal exchange rate. A perceived shift by the Federal Reserve toward an inflationary monetary policy would be likely to cause an immediate decline in the nominal and real values of the dollar and a continuing erosion of the dollar's nominal value in the future.

Inflation expectations are thus the key to understanding the apparent paradox that the U.S. budget deficit has strengthened the dollar while in so many other countries large budget deficits have been associated with falling currency values. In other countries, budget deficits have often been monetized and accompanied by inflation and by falling nominal currency values. It is the often substantial and persistent fall in nominal exchange rates that causes the public to associate budget deficits with declining currency values. Moreover, budget deficits abroad have frequently been associated with periods of excessive domestic demand that cause a rise in imports and decline in exports that directly reduces the real exchange rate. When this is understood, there is nothing surprising about the fact that the dollar has appreciated in the face of enlarged budget deficits.

Saving and Investment Shifts

The third major source of the enhanced appeal of dollar investments has been the shifts in the balance between savings and investment in the United States and in other countries.

Unlike changes in the rate of inflation, shifts in the balance between saving and investment can cause sustained changes in real rates of return. When these shifts cause the real rate of return on U.S. securities to rise relative to the return on securities abroad, investors will be attracted to dollar securities and the exchange value of the dollar will rise. Indeed, the dollar's value must rise by enough so that its expected subsequent decline will balance the higher risk-adjusted return on dollar assets.

The real rate of return on U.S. securities has increased substantially since 1980. Then the interest rate on commercial paper averaged 12.3 percent and the consumer price index inflation rate was 12.4 percent, implying a real interest rate that was approximately zero. Now that same commercial paper pays an interest rate of about 8.9 percent but consumer prices have risen at a rate of only 4.7 percent for the past six months. The implied real interest rate is thus about 4 percent. Such a high real rate is very much higher than the experience of the American economy in the past several decades.

The situation with respect to long-term real interest rates, which are the key rates in the current context, is similar although more difficult to measure. In 1980, 10 year government bonds paid a yield of about 11.5 percent, almost exactly the same as the yield on such bonds today. Although the expected inflation rate cannot be objectively measured, there can be no doubt that the inflation rate expected by financial investors has declined significantly since 1980, implying a correspondingly large rise in the real long-term interest rate.

Moreover, while the real interest rates on comparable dollar securities and German mark securities were previously very similar, the real yield on dollar securities is now much higher. Although the inflation rates in Germany and the United States are now very similar, a 3-month Eurodollar deposit yields 9.4 percent while a comparable Eurocurrency deposit in German marks yields only 5.8 percent. The yield differentials are similar on other types of assets and longer maturities.

The real long-term rate of return in each country changes over time in response to shifts in investment demand and in available savings. Some analysts have concluded that investment demand has declined in Europe because labor market conditions and tax rules have reduced investment profitability. At the same time, European saving rates have remained relatively high, putting downward pressure on the potential rate of return in Europe. By contrast, the basic after-tax profitability of U.S. investment has been increased by the decline of inflation and the enactment of the accelerated cost recovery provision of business taxation. Most fundamental, however, in increasing the gap between the return on dollar investments and other investments has been the sharp decline in net national savings in the United States.

The rise in the U.S. budget deficit has of course been the basic cause of the decline in our national saving rate. For the three decades from 1950 through 1979, the total savings of households, businesses, and state and local governments net of economic depreciation averaged 7.6 percent of GNP. During these years, the Federal Government had deficits that averaged less than one percent of GNP, leaving net national savings of 6.9 percent of GNP. Since 1980, the net savings rate of households, businesses and state-local governments has been somewhat lower than in the past, averaging 6.8 percent of GNP. But the Federal deficit rose to 3.6 percent of GNP in fiscal year 1982 and 6.1 percent of GNP in fiscal year 1983. Net national saving fell from its customary 7 percent of GNP to only 1.5 percent of GNP in 1982 and 1.5 percent of GNP in the three quarters of 1983. Moreover, and of particular importance in this context, the large budget deficits that are projected for the next five years and beyond if no legislative action is taken means that our net national saving rate will continue to remain far below the previous level.

That is the essential explanation of the strong dollar: the high real long-term interest rate in the United States, combined with the sense that dollar investments are relatively safe and that American inflation will remain low, induces investors world wide to shift in favor of dollar securities. Moreover, the unusually high real long-term interest rate here relative to the real rates abroad is now due primarily to the low projected national savings rate caused by the large projected budget deficits.

Looking Ahead

What about the future? Even if there is no change in policies, the real value of the dollar will eventually decline under the weight of accumulating trade deficits and a growing volume of foreign investments in the United States. Since there is some limit to how much in U.S. securities foreigners will be willing to hold, the dollar must eventually decline enough to balance the current account (i.e., the merchandise trade deficit minus U.S. earnings on foreign investments, services and transfers).

A decline in the dollar's real value would be helpful in reducing the very large trade deficits that now hurt many industries. Exports would increase and imports would decline. Even before the trade flows adjusted significantly to the dollar's decline, the more competitive value of the dollar would renew confidence among American firms engaged in international competition and therefore reduce the tendency of such firms to establish branches abroad or to look for foreign sources of inputs for U.S. products.

In the absence of a change in economic policy, no one can be sure how long it will take for the dollar to decline and whether it will proceed smoothly or by a sudden shift induced by a loss of confidence. For example, although the futures market implies that the dollar is expected to fall only about 4 percent relative to the mark over the next 12 months, it would not be surprising in the volatile foreign exchange market to see the dollar decline by more than 10 percent next year or even to see the real value of the dollar continue to rise.

A change in policy could, of course, increase the likelihood of a more rapid shift of the dollar toward its long-term sustainable level. Some policy changes that could speed the dollar's decline -- such as policies to reduce the safety of investing in the United States or a shift toward a more inflationary monetary policy -- would clearly be against our best interest. The main hope for reducing the dollar's real value and thereby stimulating U.S. net exports is to increse the net national saving rate in the United States by increasing private savings or by reducing the budget deficit.

More precisely, since the dollar's value reflects real long-term interest rates and therefore the expected future balance of domestic saving and investment, an increase in expected future private saving or a decrease in the expected future budget deficit would cause a current decline in the dollar's real value. Those who sense the urgency of shifting the dollar's value to a more competitive level will recognize the need for immediate policy action to raise expected future national savings by substantially shrinking future budget deficits or increasing future private saving.

Senator **Bentsen**. Thank you very much, Mr. Feldstein.

You know, I read in your prepared statement with some interest about the President's feelings on deficits. But then I witness what happened to the attempt by Senator Bob Dole of the Finance Committee and Chairman Rostenkowski of the House Ways and Means Committee to really make a dramatic reduction in our deficits over the next 3 years. We worked until late the other night and had an early meeting the next morning trying to make some headway in piecing a package together. We were talking about some politically very unpopular things.

Then, we hear the White House spokesman, Larry Speakes, describe the proposal by Senator Dole to lop off $150 billion from the deficit as just "unacceptable." Now he sought to deflect criticism by saying that the President instead prefers, and I quote here "his own deficit reduction plan." And I assume that means as yet unknown proposals to go in effect in 1985 after the election.

When Secretary Regan was testifying before us recently in the Finance Committee, I said, "These deficits ought to be attacked now. If the President believes that we ought to shrink them in 1985, why don't we go ahead and do it in 1984?" And Secretary Regan's response to me was, "1984 is an election year. Need I say more?"

Mr. **Feldstein**. Let me give a different answer.

Senator **Bentsen**. Well, first let me say I strongly disagree with that. I just do not think it can wait; we ought to move on it now. It will take pluck, but this Nation badly needs some leadership. Right now, we resemble nothing more or less than a banana republic using an overblown exchange rate to finance a consumption-led recovery with foreign capital and Government promissory notes.

Mr. **Feldstein**. I believe that Congress should move now to enact deficit reduction legislation. I think that given the nature of the problem we face, doing that as soon as possible deserves the highest priority. There is no question in my mind about that. Doing so would reassure financial markets. Doing so would mean an immediate drop in real long-term rates. Doing so would mean a more competitive dollar.

But there are lags between the time when interest rates come down and the time when the dollar comes down, the time when that shows up as more investment and more exports, lags which experience shows run between 1 and 2 years.

As much as I want to see deficits reduced, it would be a mistake if Congress somehow passed the President signed legislation which on January 1, 1984, would cut the deficit by a very large amount, say $90 billion; and I pick that number because it is the number in the President's budget for the 1986 fiscal year. It would be a mistake because it would depress economic activity.

Senator **Bentsen**. That is understood. But what we are trying to do is to start on it in 1984 and work up toward—not the $90 billion—but up toward $50 billion, with more being added for 1985 and 1986. That would, it seems to me, send some signals that Congress was measuring up to the kind of a responsibility needed to avoid a future of very high interest rates.

But I must say to you, Mr. Chairman, the President has to display some courage and exercise leadership in these things. The Congress cannot do it by itself. It is simply not able to make some tough political decisions unilaterally, involving spending cuts and higher taxes—especially when the President has turned around and said, "That is just unacceptable; we are not going to do it." Few are willing to act under such a cloud as a veto, so how do you think you can get the Congress to cut the deficit? I think the President has to exercise leadership to cut the deficit, or little will happen.

Mr. **Feldstein**. I think the President has emphasized the importance of the deficit and has put forward a budget that includes very substantial reductions in spending and increases in taxes. As you mentioned, Larry Speakes confirmed last Friday that the President stands behind this budget.

Senator **Bentsen**. But action is delayed on those steps until 1985?

Mr. **Feldstein**. To delay the substantial impact of the budget change until calendar 1985.

Senator **Bentsen**. But I do not know of any substantial tax increases that he is prepared to accept in 1984, do you?

Mr. **Feldstein**. I do not; no.

But it does seem to me, again, that it would be a mistake for us to make a substantial change in the deficit in 1984. To reduce economic activity, either by major spending cuts or by a substantial tax increase, in 1984 would be, I think, a macroeconomic mistake. It would depress activity too soon. It has nothing to do with when elections are held. It is just a statement as a matter of macroeconomic judgment that we want to give advance notice because it takes time for interest rates to have their impact on investment: it takes time for a more competitive dollar to have its impact on the volume of exports.

Senator **Bentsen**. Mr. Chairman, the realities are such that it will be difficult to see massive tax increases made in 1984. But, we must get started on the process and send a signal to investors that interest rates should go down.

Mr. **Feldstein**. The important thing is that signal. The important thing is to reassure the financial markets and business investors around the world, that in 1985 and beyond, those deficits are going to be coming down sharply.

Senator **Bentsen**. Congressman Hamilton.

Representative **Hamilton**. Thank you. Your statement and questions have been very good and I have appreciated, as I usually do, Mr. Feldstein's comments. They are always very helpful to us.

Now let me see if I understand. Let me convey to you what I think the difference is between your position and the President's position, as it comes across to me.

Both of you are against deficits, but it does seem to me that the President's opposition to deficits is a conditional opposition. In effect, he opposes tax increases more than he opposes deficits. Certainly that is the impression conveyed in the country.

Every time the President makes a statement, last week included, he comes out very strongly against any kind of a tax increase.

Now your view, it seems to me, is that you would prefer a tax increase to increases in the deficit. And so, I see then a real difference between the President's economic position and the position of his chief economic adviser.

Mr. **Feldstein.** But that is not a realistic description. The President and I agree that the budget deficit should be reduced, and that the right way to do so is on both the tax side and the spending side.

What the President said last Thursday night and what was reiterated on Friday is that he is opposed to taxes per se. He does not want a tax package. He wants a deficit reduction package. What he submitted to Congress and what he stands behind is a deficit reduction package which would affect both sides of the ledger.

Representative **Hamilton.** Well, let me just quote a paragraph to you from the Congressional Quarterly—

> Meanwhile, the President made it clear he would not lend his support to any major effort to reduce the deficit if taxes were involved. Reagan vowed to veto any tax increase "no matter how they arrive."

Mr. **Feldstein.** But he certainly did not mean to imply that he has withdrawn his support for his own budget proposal, and Larry Speakes' statement the next day made that very clear. That statement was made in the morning and there was a supplemental statement later in the afternoon on Friday that confirmed the President's support for a balanced package.

Representative **Hamilton.** Let me say to you, there is a very big difference between a statement made by a President and a statement made 2 or 3 days later by his Press Secretary with regard to the impression that is conveyed to the country about the President's position.

Now, turning to the contingency tax proposal, I do not think you have submitted any formal proposal for that, have you?

Mr. **Feldstein.** The administration has not submitted legislation.

Representative **Hamilton.** No legislation has been submitted by the administration in support of the contingency tax? So you are not on record officially with the U.S. Congress in support of any tax increase?

Mr. **Feldstein.** But we are on record. There is no question that the President's budget called for that. He made very clear just what was wanted in that and the actual drafting of it—I'm sure the talented folks up here could very easily do between breakfast and lunch.

Representative **Hamilton.** Now, Mr. Feldstein, you know well that if you are pushing a proposal in the administration, you get a bill up here and you get a bill up here pronto. But no such bill has come up. The Senator spoke just a moment ago about the necessity of exercising leadership here and that is certainly part of it—to get your legislative proposals on the Hill and push them. I have not had a single person from the administration come to me and say, "We support the contingency tax proposal and want it enacted."

Mr. **Feldstein.** The reason why there is not a bill is that we do not want just the tax part of the budget. There is a budget. It calls for a combination of spending cuts and tax increases that you could not write into a single bill. What the President has made clear time and time again is that he wants the entire package; a package which balances spending cuts and tax increases. It does not provide just for the taxes. If we submit a piece of tax legislation and campaign actively for it, we may get back that part of the President's overall budget rather than the entire budget plan. That is not what the President wants.

Representative **Hamilton**. Let me put the question this way. Suppose the choice is restricted to large deficits or tax increases. Which would you and the President prefer?

Mr. **Feldstein**. I do not want to think about that choice. The budget deficits looming out there will be about 5 percent of GNP. Reducing them by tax increases alone would require, roughly speaking, a 50 percent increase in everybody's personal income tax. If you did it across the board, everybody's personal income tax would increase by 50 percent. I do not want to think about that possibility.

I want to think that we can have balanced spending cuts and additional tax revenue that will shrink that budget deficit.

Representative **Hamilton**. If you go out here on Main Street U.S.A., and ask people how they want to get the deficit down, they all say, "I want to cut spending." Very rarely will you get the answer, "We ought to increase taxes." Some people will say that, but not very many, and it is an enormously popular thing to say I want to balance the budget by cutting spending.

My own observation is that after the experience of the last 2 or 3 years you simply are not going to be able to get that deficit down without an agreed upon package which cuts both entitlements and defense spending, and increases taxes, as well. Even so, it is going to take extraordinary political leadership to pull that off, given the natural resistance to doing almost all of those things that I have mentioned.

It has been said frequently up here on the Hill that the conservatives want to reduce the deficit but more important than the deficit is to increase defense spending; and as for the liberals, they want to reduce the deficit but more important is to increase entitlements. I think there is a lot of merit to that observation.

I have come to the conclusion that the only way to get the deficit down is a package arrangement, and I really do not see that coming about without Presidential leadership.

Mr. **Feldstein**. I remember in January, when we were working on the budget for 1984 through 1988, reading in the newspaper almost everyday speculation about what that budget would look like. Inevitably, the pundits said that the President would never agree to put taxes in that budget, and therefore, that it would have very austere spending cuts and probably some wild economic forecasts for the next 5 years, which together, would make it look like the deficits were coming down.

In fact, we produced a budget which I think should have surprised people. I think it did surprise people. It included forecasts which were essentially the same as those of the Congressional Budget Office and most private forecasters, and it included tax increases which over those 5 years did more to reduce the deficit than spending cuts.

So I think the President proposed a balanced package. I do not think there is any dispute about the need for a balanced package.

There is some disagreement about the kinds of domestic spending cuts and specific kinds of taxes that are appropriate in that balanced package. But the President did submit that budget and I think that is called taking the lead. I am disappointed that when the budget came up here, even though it met the requirements that everyone kept saying were going to be needed for a serious dialog to develop within the framework of the administration's budget, the Congress showed no interest in that particular combination of spending cuts and tax increases.

Representative HAMILTON. I really do not have any quarrel with that at all. I do not put all the blame on the President by any means, but I put a portion of it on him.

Mr. FELDSTEIN. Perhaps now we are seeing an 11th hour Congress recognizing the nature of the fiscal crisis and the uniqueness of the problem, and coming back to asking themselves how they can produce a budget which has the essential features that the President proposed last January. I hope so.

Representative HAMILTON. Mr. Chairman, may I go into one other topic?

Senator BENTSEN. Yes, of course.

Representative HAMILTON. I would like to get your views on inflation. The midsession review of the budget showed inflation peaking at about 5 percent in 1984 and 1985 and then falling steadily after that.

Now as I understand recent economic history, if that were to happen, it would be most unusual. The only time we have had strong growth combined with low inflation was during the early 1960's, I think. But what strikes me about that inflation projection is the way it drops rather sharply.

If you look at the 1973–75 recession, which is comparable to the one we are coming out of in many respects, you at that time expressed your concern in testimony before this subcommittee that gains being made then against inflation were quickly lost by reflating too soon and too much. Those were your words.

The recovery we are now in resembles the recovery following the 1973–75 recession very closely. You have about the same real growth; you have about the same proportion of reduction in unemployment, 19 versus 17 percent; and the assumption would thus be that inflation will soon reappear just as it did during the 1976–79 recovery.

How can you be optimistic then about this inflation rate going down in view of that recent history?

Mr. FELDSTEIN. Well, in 1973–74, of course, we also had the oil shock which compounded the problems, but I think if we continue to grow at the 6.5 percent rate that we have had thus far this year, inflation would start to rise at an uncomfortable rate. I think that would be excessive.

Of course, we are not forecasting that for next year. We expect the growth to come down to 4.5 percent next year and 4 percent after that. With the amount of slack that we now have in the economy, the 4.5 percent growth rate is consistent with continuing declines in the rate of inflation at a very small rate of decrease. We are talking about going from 5 percent next year to about 4 percent by the end of the decade. I might add that, of course, that forecast is conditional upon the entire budget program. All of our forecasts are conditioned upon getting the deficits down and not having the strains on the economy that could lead to monetary policy that would be inflationary.

Representative HAMILTON. What has actually changed in the economy to lead you to think that the inflation rate is going to come down in a period of recovery when it rose instead in comparable earlier periods?

Mr. FELDSTEIN. Well, in the 1973–75 period oil prices rose rapidly. I would have to look at the specific unemployment rates and the amount of excess capacity back then. I don't have the numbers here with me to do that. But if you look at the amount of slack that we have in the economy now, there is no question that we are capable of growing at a moderate pace without inflation picking up.

If anything, this past year has been one of surprises on the downside of inflation. We anticipated higher inflation in 1983 than we have actually observed.

Representative **Hamilton**. As of now, are you sticking with your inflation prediction for a falling inflation rate?

Mr. **Feldstein**. We predict a 5-percent inflation in 1984, and after that a falling inflation rate, if the budget is moving along the path that we called for in January. If the budget deficits are going to be $200 billion, if the economy is going to be torn apart at the seams in 1985 and 1986 or 1987, then I do not want to say that we are not going to see a monetary policy that is inflationary at that time.

Representative **Hamilton**. Thank you, Mr. Chairman.

Senator **Bentsen**. Thank you, Congressman.

You and the Secretary of the Treasury really disagree on the size of our deficits and, in turn, what effect they are going to have. I note the CBO is projecting a $200 billion deficit for 1985 and your projections for the fiscal year 1985 is $206 billion, which will be closer to the mark, I believe.

On October 5, before the chamber of commerce here in Washington, Secretary Regan somewhat mysteriously projected the fiscal year 1985 deficit would narrow sharply to the area of $100 billion.

Mr. **Feldstein**. Again, I do not like to put words in the mouths of my colleagues or have them do that to me, but I think there is a difference between those two numbers that I should clarify.

Senator **Bentsen**. Yes, $100 billion; $100 billion here and $100 billion there and the first thing you know you are talking about real money.

Mr. **Feldstein**. The $200-plus billion number, the so-called current services number, assumes no legislative action.

I think the Secretary was talking about what might happen in the calendar year 1985 if we had favorable legislative action.

Senator **Bentsen**. Well, all right, now we are getting somewhere. What is this mysterious fiscal 1985 $100 billion deficit reduction package?

Is there any way you can achieve that without very major new tax increases and cutting domestic programs even more than those proposed recently by Senator Dole?

Mr. **Feldstein**. I think not. I think our forecast for the 1986 fiscal year calls for a deficit of $219 billion on a current service basis and a $129 billion if all of our policies are implemented.

Senator **Bentsen**. Well, you made a statement earlier about the budget having been sent to the Congress and the Congress not accepting it. But as I recall, it was sent to the Budget Committee in the Senate, where we have a majority of Republicans. They said, "We want to sit down with you and negotiate as to what this budget should be." Yet, there was no negotiation. The administration in effect said, "Take it or leave it," to your fellow Republicans. So they turned around and voted the next night. As I recall, the vote was almost unanimous by Republicans and Democrats alike.

Senator Exon. Mr. Chairman, I am a member of the Budget Committee and you are citing it correctly. The President's budget sent down here was unanimously rejected by the Budget Committee as unacceptable. It was totally nonpartisan. It was on both sides of the table. on both sides of the table. And I think that is why we—if I might And I think that is why we—if I might inject something—have simply got to put together a bipartisan group like we did on social security. Everybody has to take some heat, everybody has got to bite the bullet. I say again that the most tragic thing that's happening is we are overlooking the fact that 2 years ago we broke through the $1 trillion debt ceiling limit for the first time. While numbers in and of themselves means very little, it is very important to me that by 1984, we will have gone up to $1.6 trillion.

If I might ask the Chairman of the Council of Economic Advisers, is that a shock to the financial system that we are not likely to recover from because the President's proposal does not do anything to reduce that deficit for many years to come? Even if we accepted the President's proposal, would we be on a course to go above the present $1.6 trillion debt ceiling that he has just requested us to approve? That is going on up anyway, is it not?

Mr. Feldstein. At some point we would certainly go above it, but obviously at a time much further in the future.

The President's budget calls for cutting $90 billion out of the deficit, cutting it almost in half in the fiscal year that begins in 1985. I do not think we can do much much sooner than that. That is one of the serious reasons why it is important for Congress to act legislatively now. I do not think we are disagreeing about that.

Senator Bentsen. Well, I agree with that.

Mr. Feldstein. And I think if the Congress does not act now, then we will be sitting here 2 years from now and I will be saying, "Please do not act now. Vote something now to take effect 2 years from now because you always have to give advance notice to the economy before you hit it with a large potentially contractionary shock."

Senator Bentsen. Well, Mr. Chairman, I agree that Congress should act, but Congress is not going to act without the President sharing some of the load and displaying some economic leadership. When you have something in the way of a bipartisan consensus attempted with Senator Dole and even Chairman Rostenkowski and then to have the props just kicked out from under them——

Mr. Feldstein. I am surprised you say "with Chairman Rostenkowski." I had not understood that he had supported the initiative that was coming out of the Senate Finance Committee.

Senator Bentsen. Those negotiations were underway. Yet, all of a sudden, that statement we have discussed came out of the White Houe. It torpedoed what progress we were beginning to make.

Let me ask you one more question. Let me tell you my greatest fears about this economy. If we do not get the kind of help that I think we need in the way of a consensus and a bipartisan effort to shrink the deficit now, we have the 1984 election year coming up. That election year is when you have to pass legislation to take effect in fiscal year 1985—yet passing big tax hikes or spending cuts in that election year is going to be even more difficult than it would be right now.

I think we have a window that we could proceed through right now in a lame duck session if we had the leadership from the President that we need. If he sits out this big fight, then no major action may occur until 1985. If the recovery pretty much follows the postwar pattern, I think you will probably see a slowdown in growth in 1985. Then you will face the risk of precipitating a recession if major action to cut the deficit occurs—it will really freeze in the deficits at these astronomical levels.

So if I had to bet, I think that in the next 6 months is the time and place where we ought to act. Let us get the job done now.

A lot of people ask every day whether they should finance a house or borrow money. How could you advise them? Is it realistic to anticipate that interest rates, particularly long-term rates on mortgage, are going to decline over the next 2 years with these kinds of deficits? Do you think they will decline?

Mr. FELDSTEIN. I hate to make interest rate forecasts, but I would say that if no progress is made in dealing with the deficits, it is hard to believe that real interest rates would come down. If inflation comes down, we may see some improvements in market rates. If inflation goes up because of these deficits and the monetary policy they lead to, then we will see higher interest rates.

These deficits pose a very substantial barrier to any real reduction in the interest rates, a very substantial barrier.

Senator BENTSEN. There have been some arguments that the real interest rates that we see now, which historically are certainly on the high side for this stage of a recovery, are not justified. Do you think they are?

Mr. FELDSTEIN. Justified? They are what is required to balance the supply and demand of funds in this world economy of ours. If suddenly we go from $50 billion deficits to $200 billion deficits, if OPEC goes from being a major saver to a dissaver, this puts upward pressure on interest rates around the world. Certainly our deficits do so in our capital markets here.

Senator BENTSEN. Well, with all of these conflicting statements we have had from various officials of the administration, Mr. Chairman, did you have to have your prepared statement cleared by anyone in the administration?

Mr. FELDSTEIN. All testimony, as far as I know, always has gone through an interagency process. So this testimony that you have heard and all of the testimony that I have given since I assumed my current position has gone through the same process of being reviewed at the staff level within Commerce, OMB, and Treasury; and I, and my staff, in turn, review the testimony of those agencies.

Senator BENTSEN. Well, you just keep right on discussing these deficits as much as you can. The Nation needs to know what you think. I have the greatest respect and admiration for you, sir, and I appreciate your remarks.

Mr. FELDSTEIN. I appreciate that, but let me just emphasize that nothing I said in my remarks, I believe, is not also contained in the prepared statement that you have here.

Senator BENTSEN. Do you have any questions?

Representative HAMILTON. Just two questions, if I may, Mr. Chairman.

One involves the relationship of deficits to the value of the dollar. You have written on several occasions that you attribute the high dollar to "the process of disinflation and the high deficits."

Now, first of all, I am not sure what you mean by "process of disinflation." What does that refer to?

Mr. FELDSTEIN. A fancy way of saying that the inflation rate came down.

Representative HAMILTON. That does not refer to tight money policy?

Mr. FELDSTEIN. I did not particularly mean it to be that. I really meant the decline in the inflation rate and the expectation that the inflation rate would stay down.

Representative HAMILTON. Now Mr. Volcker when he comes before this committee argues that deficits tend to depress the value of the dollar since they raise inflationary expectations. What is wrong with that argument?

Mr. FELDSTEIN. Well, I do not like to disagree with Paul Volcker, but I think that the world gives him more credit for limiting inflation than his statement suggests. I think that even with large budget deficits we can avoid an increase in inflation if the Fed purses the appropriate kind of monetary policy. And, in effect, what people are betting on around the world is that the Fed will pursue such a policy even with these large budget deficits. Thus, the real interest rates are high and the inflation is not weakening the currency. But if they change their expectations, if they come to think that the Fed cannot go on in the face of these deficits with a sound anti-inflationary policy, then expectations could change. We could see a sharp fall in the dollar, as people become worried about inflation.

Representative HAMILTON. Do you then believe that the high Federal budget deficits taken alone work in the direction of raising the exchange rate of the dollar?

Mr. FELDSTEIN. I do, because I think the principal effect is to raise real long-term interest rates. That makes it attractive for funds to come in here. Insofar as they raise the prospects of inflation, that would work against that. But, on balance, the evidence is that the large deficits and the high real interest rates are attracting funds here and bidding up the dollar.

Representative HAMILTON. One other question, Mr. Chairman. As I understand your position, the future big deficits are a principal reason for long-term interest rates, but not short-term interest rates. We have high short-term interest rates today. What is causing those?

Mr. FELDSTEIN. It is a combination of two things: the current stance of monetary policy and also the budgetary pressures, current and future, keep real rates high.

Representative HAMILTON. Thank you very much, Mr. Chairman.

Senator BENTSEN. Mr. Chairman, we are very pleased to have you here, and I think your testimony has been most helpful to us. It is certainly a matter of shared concern when we are talking about these deficits. It is frustrating trying to find some way to bring about a consensus. If we do not, I think we, and our children, will have some terrible problems to face in the future. And I thank you very much.

The subcommittee is adjourned.

[Whereupon, at 11:25 a.m., the subcommittee adjourned, subject to the call of the Chair.]

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